



INSTALLATION INSTRUCTIONS AND SAFETY INFORMATION

FOR THE VIKING SINGLE CONTROL UNIT

VIKING ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™

VIKING ACCESS SYSTEMS™



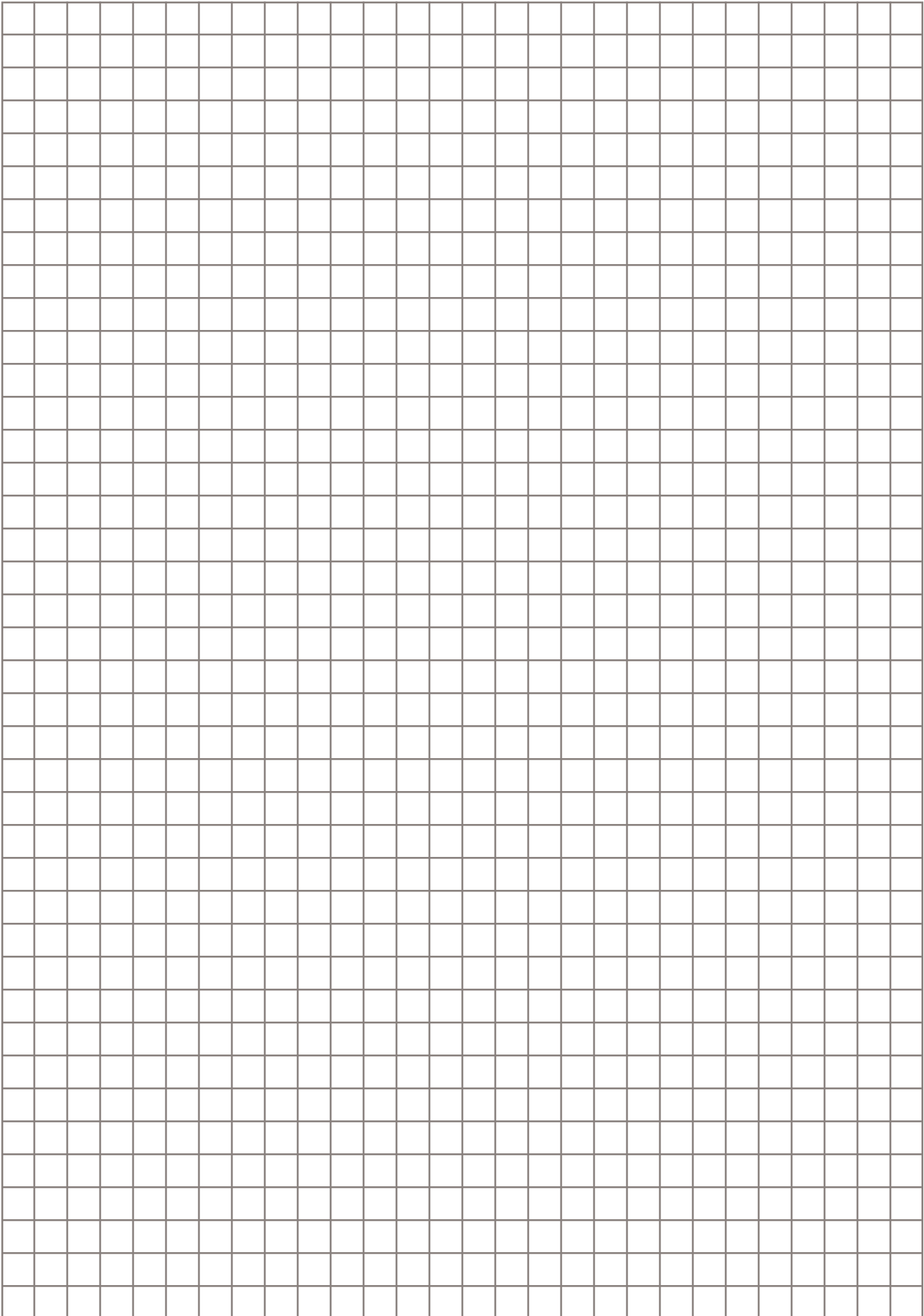
CLASS II, CLASS III, AND CLASS IV
**Commercial/Residential Vehicular
Swing Gate Control Unit**



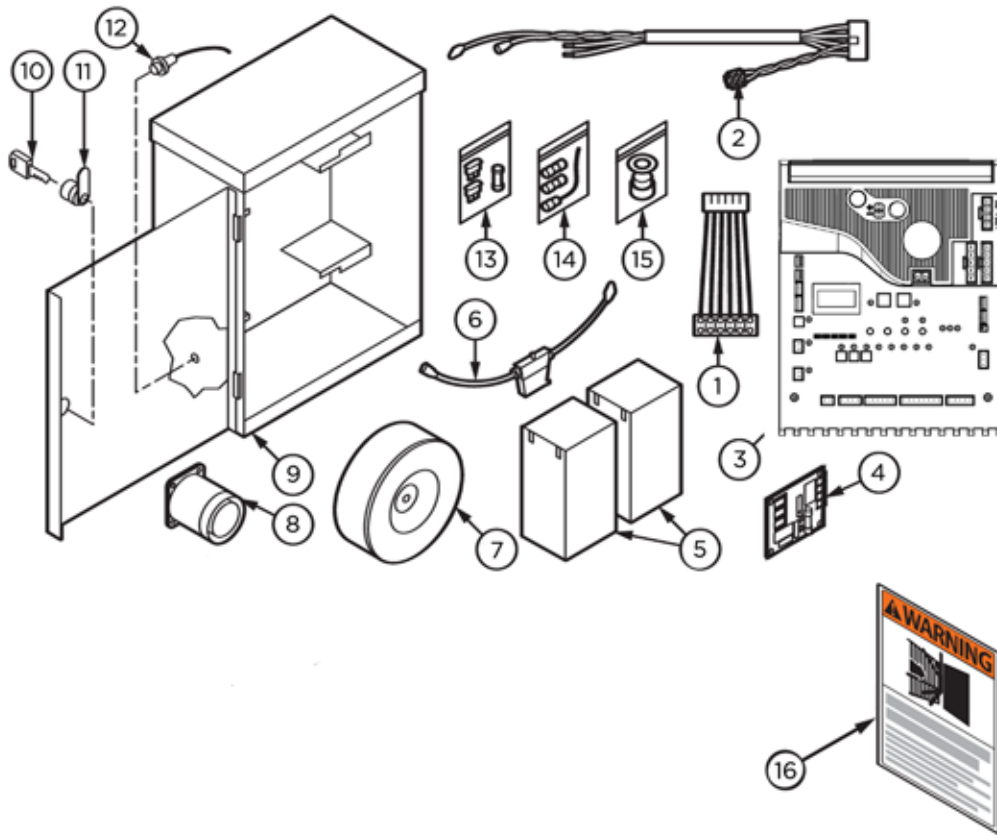


This Single Electronic Control Unit “ECUS” is equipped for use with 115/230VAC, 24VAC/VDC or solar and includes a battery backup system and Viking’s new “VFlex” control board. The VFlex control board offers enhanced surge/lightning protection, state of the art technology and a user-friendly design for setup and troubleshooting.

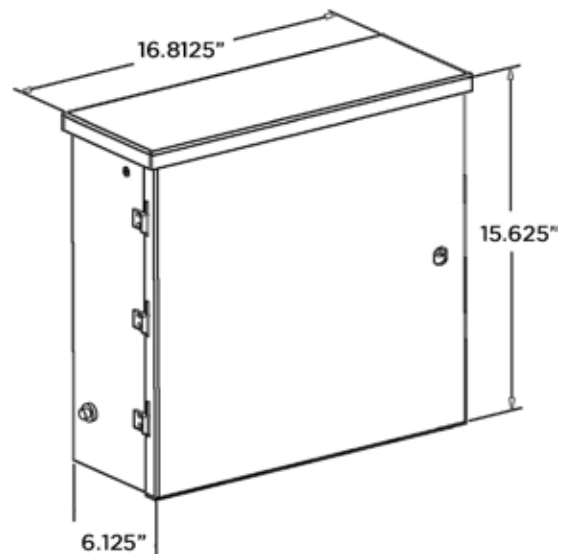
THE VIKING SINGLE ELECTRONIC CONTROL UNIT



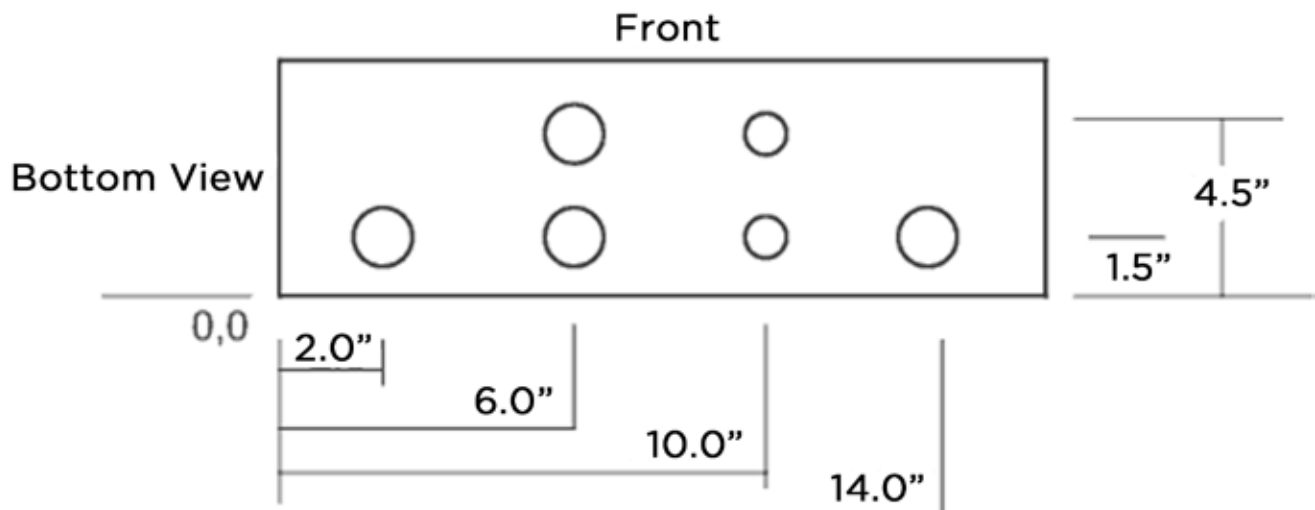
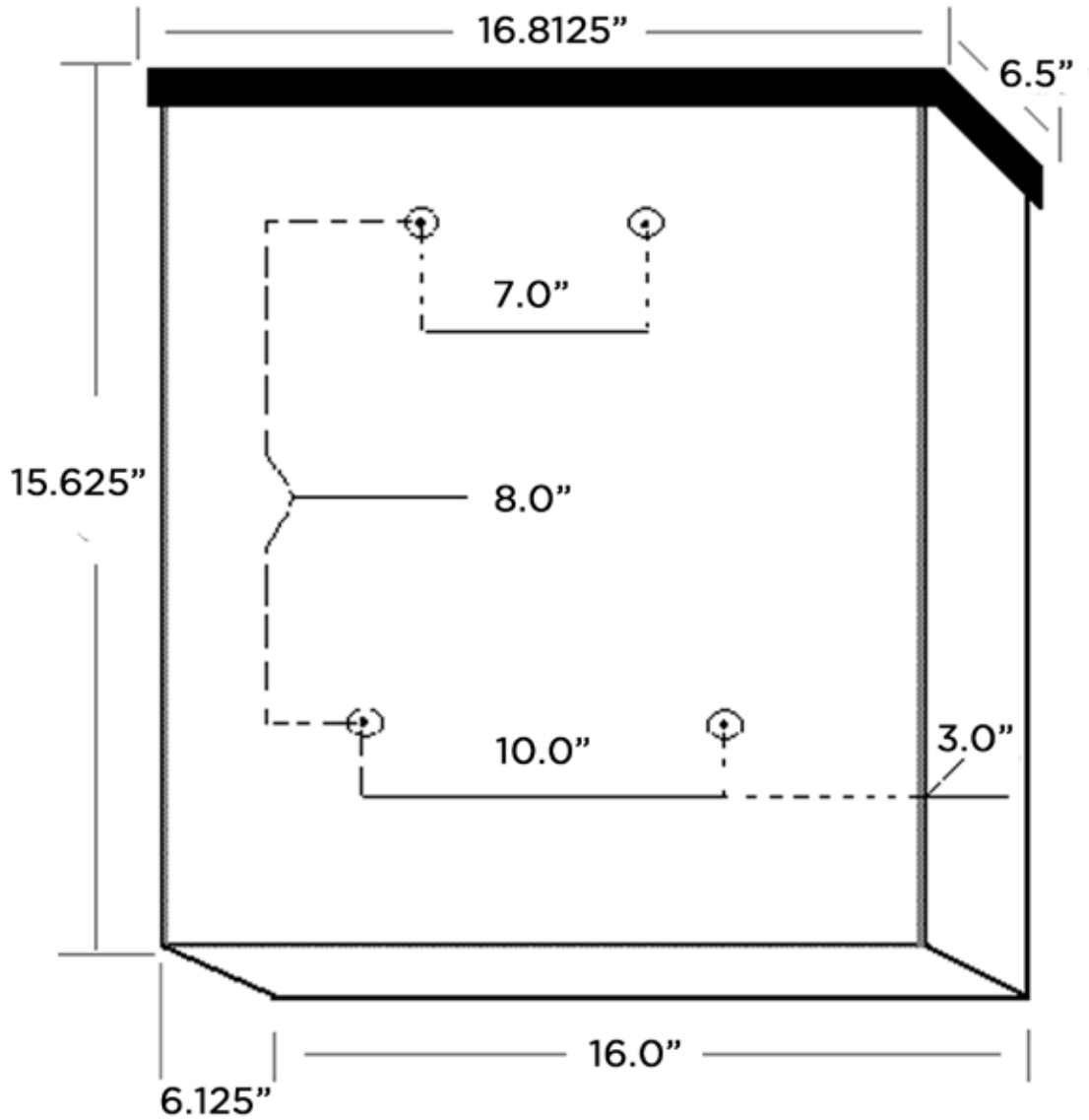
PARTS DIAGRAM:



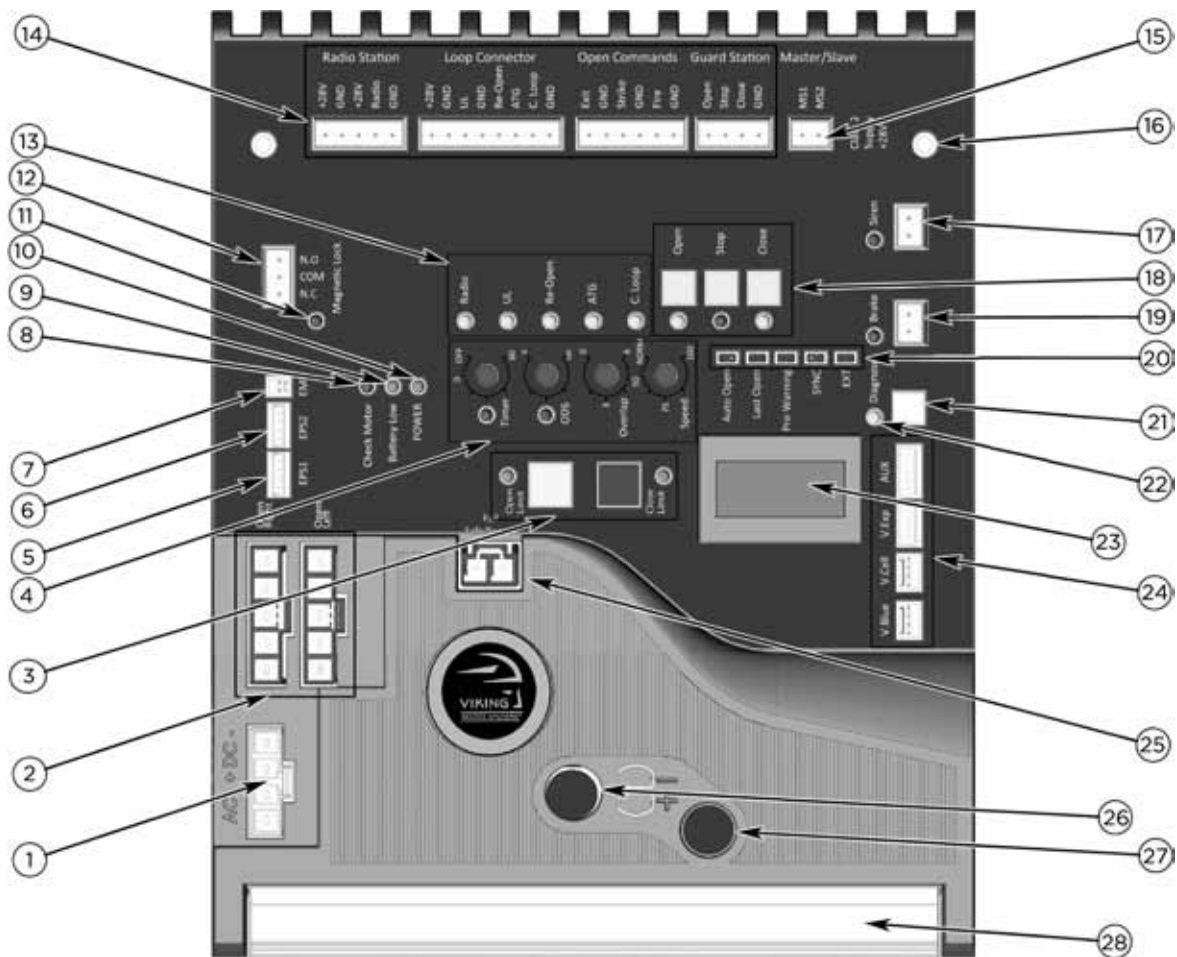
Item	Description	Part No.
1	Motor Harness (Single only)	ECUMTHRN
2	Power Harness	DUPHCECU
3	Control Board (Master/Single)	VFLEXPCB
4	EMI Board	DUEMI10
5	Battery	DUBA12
6	Battery Fuse Holder	VABFH
7	Toroid Transformer - 10 amp	DUTT10
8	Alarm	DUAL10
9	ECU Box	VA-ECUBB
10	ECU Access Key	ECUKEY20
11	ECU Key Cylinder W/ 2 Keys	ECUKEYC20
12	Alarm Reset Switch	ECURW
13	Fuse Kit	DUFSK10
14	Radio Antenna Kit	VARAK
15	Strain Relief (ECU)	DH3/4NMCC
16	Warning Placard	DUWPA



ECU BOX DIMENSIONS:



CONTROL BOARD REFERENCES:



1. POWER HARNESS CONNECTOR provides power to the control board. pg 14-15
2. "OPEN LEFT" & "OPEN RIGHT" provides power to the motor. pg 16
3. INACTIVE FOR ECU APPLICATIONS available for future developments
4. FEATURE ACTIVATION TRIM POTS activate and set features. pg 18
5. "EPS1" CONNECTOR available for future developments
6. "EPS2" CONNECTOR monitors the limit positions.
7. EMI BOARD CONNECTOR monitors the high voltage power supply.
8. "CHECK MOTOR" Status LED indicates motor power status. pg 30
9. "LOW BATTERY" Status LED indicates battery power status. pg 30
10. "POWER" Status LED control board power status. pg 14,30
11. "MAGNETIC LOCK" Status LED status of this on-board relay. pg 27, 30
12. "MAGNETIC LOCK" Terminal Block connect electric locks here. pg 27, 30
13. INPUT STATUS LEDS indicates input status. pg 30-31
14. ACCESS CONTROL TERMINAL BLOCKS accessory connections. pg 22-25, 36-38
15. "Master/Slave" Terminal Block wired master/slave connection.
16. CONTROL BOARD MOUNTING HOLES secures and grounds the control board.
17. "Siren" Terminal Block Vikings UL Siren is connected here.
18. ON-BOARD 3 BUTTON STATION controls the gate during set up.
19. "BRAKE" Terminal Block used for solar applications & in-motion warning devices. pg 15, 19
20. FEATURE ACTIVATION PIN HEADERS active features by placing a jumper onto the pin headers. pg 19
21. "DIAGNOSE" Button allows you to navigate through the Diagnostics LCD Display. pg 32-34
22. "DIAGNOSE" LED informs that errors have been detected and available on LCD Display. pg 32-34
23. LCD DIAGNOSTICS DISPLAY provides error messages, diagnostics and operator status information. pg 32-34
24. VIKING ADD-ON CONNECTIONS connections for Viking Konnect and Viking Monitor. pg 40
25. "FAIL SAFE/SECURE" Jumper power failure option. pg 19
26. MOTOR FUSE
27. CHARGER FUSE
28. HEAT SINK secures the control board and dissipates heat.

TABLE OF CONTENTS:

PARTS DIAGRAM/PARTS LIST	2
ECU BOX DIMENSIONS	3
CONTROL BOARD REFERENCES	4
IMPORTANT SAFETY INFORMATION	6-12
Important Safety Instructions.....	6
Important Installation Instructions.....	7
Maintenance.....	8
General Safety Precautions.....	8-9
Operator Classification.....	9
Photo Beam (non-contact sensor) Installation.....	10
Edge Sensor (contact sensor) Installation.....	11
Audible Alarm Reset Installation.....	12
Warning Placard Installation.....	12
IMPORTANT INSTALLATION INFORMATION	13
Specifications.....	13
ECU Box Installation.....	13
ELECTRICAL INSTALLATION	14-16
High Voltage Supply Option.....	14
Low Voltage Supply Option.....	15
Solar Supply Option.....	15
Motor Harness.....	16
LIMIT INDICATIONS	17
CONTROL BOARD SETUP	18-21
Initial Settings.....	18-19
Obstruction Detection Sensor (Primary Entrapment Protection).....	20
Viking Heater.....	21
ACCESSORY CONNECTIONS	22-28
Re-Open Photo Beam (Vehicular Safety).....	22
Radio Receiver (Typical).....	23
Anti-Tail Gate, Open Commands, Guard Station.....	24
Viking Loop Rack.....	25
Guidelines for Loop Installations.....	26
Magnetic Lock, Lock Solenoid.....	27
Barrier Arm (B-12) Synchronization Option.....	28
TROUBLESHOOTING	30-35
LED References.....	30-31
LCD Display References.....	32-34
Solutions.....	35
APPENDIX A, B & C	36-39
VIKING EXPANSION PRODUCTS	40

IMPORTANT SAFETY INFORMATION

 **WARNING! Not Following these instructions may cause severe injury or death.**

IMPORTANT SAFETY INSTRUCTIONS

 **WARNING! To reduce the risk of severe injury or death.**

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. Never let children operate or play with gate controls. Keep the remote away from children.
3. Always keep people and objects away from the gate. **NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.**
4. Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or when an object activates the non-contact sensors. After adjusting the force or the limit travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.
5. Use the manual release only when the gate is not moving.
6. **KEEP GATES PROPERLY MAINTAINED.** Read the owners manual. Have a qualified service person make repairs to gate hardware.
7. The entrance is for vehicles only. Pedestrians must use a separate entrance.
8. **Every gate operator installation MUST have secondary protection devices against entrapment, such as edge sensors and photo beams more in particularly in places where the risk of entrapment is more likely to occur.**
9. SAVE THESE INSTRUCTIONS.

IMPORTANT INSTALLATION INSTRUCTIONS

1. Install the gate operator only when:
 - a. The operator is appropriate for the construction of the gate and usage Class of the gate (refer to page 5),
 - b. All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1.22 m) above the ground to prevent a 2-1/4 inch (57.2 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position,
 - c. ALL EXPOSED PINCH POINTS ARE ELIMINATED OR GUARDED, AND
 - d. GUARDING IS SUPPLIED FOR EXPOSED ROLLERS.
2. The Operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come into contact with the vehicular gate during the entire path of travel of the vehicular gate.
3. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open in to the public access areas.
4. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator. Do not over-tighten the operator clutch or pressure relief valve to compensate for a damaged gate.
5. The gate operator controls must be placed so that the user has full view of the gate area when the gate is moving **AND AWAY FROM THE GATE PATH PERIMETER.**

IMPORTANT SAFETY INFORMATION

 **WARNING! Not Following these instructions may cause severe injury or death.**

IMPORTANT INSTALLATION INSTRUCTIONS (Continued)

6. Controls intended for user activation must be located at least six feet (6') away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.
7. The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
8. All warning signs and placards must be installed where visible in the area of the gate. A minimum of two placards shall be installed. A placard is to be installed in the area of each side of the gate and the gate be visible to persons located on the side of the gate on which the placard is installed.
9. **For gate operators using non-contact sensors (Photo Beams or like) in accordance with section 31.1.1 of the UL standard:**
 - a. The operator is appropriate for the construction of the gate and usage Class of the gate (refer to page 5),
 - b. Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle, trips the sensor while the gate is still moving, and
 - c. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier (refer to page 6).
 - d. Use only Omron E3K-R10K4 photoelectric eye to comply with UL 325
10. **For a gate operator utilizing a contact sensor (Edge sensor or like) in accordance with section 31.1.1 of the UL 325 standard:**
 - a. One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as a the leading edge, trailing edge, and post mounted both inside and outside os a vehicular horizontal slide gate (refer to page 7).
 - b. One or more contact sensors shall be located at the bottom of a vehicular vertical lift gate.
 - c. One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.
 - d. A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subject to mechanical damage.
 - e. A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstructions. A wireless contact sensor shall function under the intended end-use conditions.
 - f. One or more contact sensors shall be located on the inside and outside leading edge of a swing gate. Additionally, if the bottom edge of a swing gate is grater than 6 inches (152 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located at the bottom edge (refer to page 7).
 - g. One or more contact sensors shall be located at the bottom edge of a vertical barrier (arm).
 - h. Only Use Miller Edge Model MGR20 or MGS20 edge sensor to comply with UL325

IMPORTANT SAFETY INFORMATION

 **WARNING! Not Following these instructions may cause severe injury or death.**

MAINTENANCE

Remove the Power Harness from the Control Board (refer to page 14)

- Clean and lubricate the turning pins and gate hinges using the recommended lubricant.
- Check that all mounting hardware of the gate operator is properly tighten.
- Ensure that the gate moves freely.
- Check for corroded parts and replace if necessary.
- Check the battery for the following:
 - Battery connections must be free of corrosion.
 - Battery voltage must be 26v DC (fully charged battery).

Reconnect the Power Harness for the Control Board (refer to page 14)

- Check and confirm the proper operation of all safety devices (photoelectric eye, edge sensors or like).
- Check and confirm the operation of all installed accessories.
- Check and confirm the operation of all special features such as the Intelligent Obstruction Sensor, Hold Open Timer (refer to page 18 and 20)
- Check and confirm the operation of the manual release (See Operator Manual)
- Verify battery backup functionally by turning off the power source (120v AC and 220v AC). **DO NOT FORGET TO TURN ON THE POWER SOURCE AFTER VERIFICATION.**

GENERAL SAFETY PRECAUTIONS

The following precautions are an integral and essential part of the product and must be supplied to the user. Read them carefully as they contain important indications for the safe installation, use and maintenance.

- These instruction must be kept and forwarded to all possible future users of the system.
- This product must be used only for that which it has been expressly designed.
- Any other use is to be considered improper and therefore dangerous.
- The manufacturer cannot be held responsible for possible damage caused by improper, erroneous or unreasonable use.
- Avoid operating in the proximity of the hinges or moving mechanical parts.
- Do not enter the path of the moving gate while in motion.
- Do not obstruct the motion of the gate as this may cause a situation of danger.
- Do not allow children to play or stay within the the path of the moving gate.
- Keep remote control or any other control devices out of the reach of children, in order to avoid possible involuntary activation of the gate operator.
- In case of break down or malfunctioning of the product, disconnect from the main power source. Do not attempt to repair or intervene directly, contact only qualified personnel for repair.
- Failure to comply with the above may create a situation of danger.
- All cleaning, maintenance or repair work must be carried out by qualified personnel.
- In order to guarantee that the system works efficiently and correctly it is important to have the manufacturer's instructions on maintenance of the gate and operator carried out by qualified personnel.
- In particular, regular checks are recommended in order to verify that the safety devices are operating correctly.

All installation, maintenance and repair work must be documented and made available to the user.

IMPORTANT SAFETY INFORMATION

CAUTION: To Reduce the Risk of Fire or Injury to Persons:

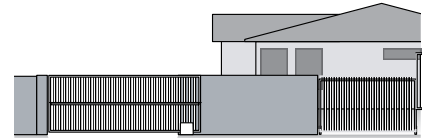
- a. Use only the following type and size battery(ies): Yuasa NP7-12
- b. Do not dispose of the battery(ies) in fire. The cells may explode. Check with local codes for possible disposal instructions.
- c. Do not open or mutilate the battery(ies). Released electrolyte is corrosive and may cause damage to the eyes or skin. It may be toxic if swallowed.
- d. Exercise care in handling batteries in order not to short the battery with conducting materials such as rings, bracelets and keys.
- e. Change the battery(ies) provided with or identified for use with this product only in accordance with the instructions and limitations specified in this manual.
- f. Observe proper polarity orientation between the battery(ies) and charging circuit.
- g. Do not mix batteries of different sizes or from different manufactures in this product (applies to products employing more than one user replaceable secondary battery).
- h. A battery-operated product employing a secondary battery supply intended to be charged within the product shall contain specific instructions concerning the proper method of charging.

UL325 Gate Operator Classification

GLOSSARY

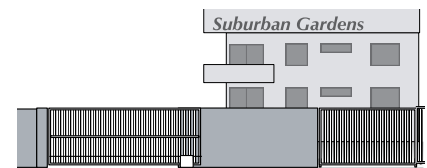
RESIDENTIAL VEHICULAR GATE OPERATOR

CLASS I - A vehicular gate operator (or system) intended for use in a home of one-to four single family dwelling, or a garage or parking area associated therewith.



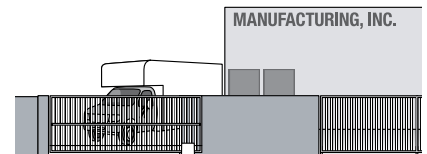
COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

CLASS II - A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel, garages, retail store, or other building servicing the general public.



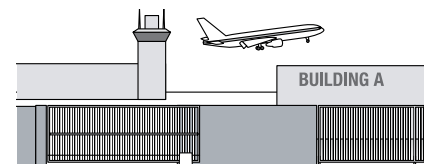
INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

CLASS III - A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.



RESTRICTED ACCESS VEHICULAR GATE OPERATOR

CLASS IV - A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.



Install the gate operator only when:

The operator is appropriate for the construction of the gate and the Usage Class of the gate.

IMPORTANT SAFETY INFORMATION

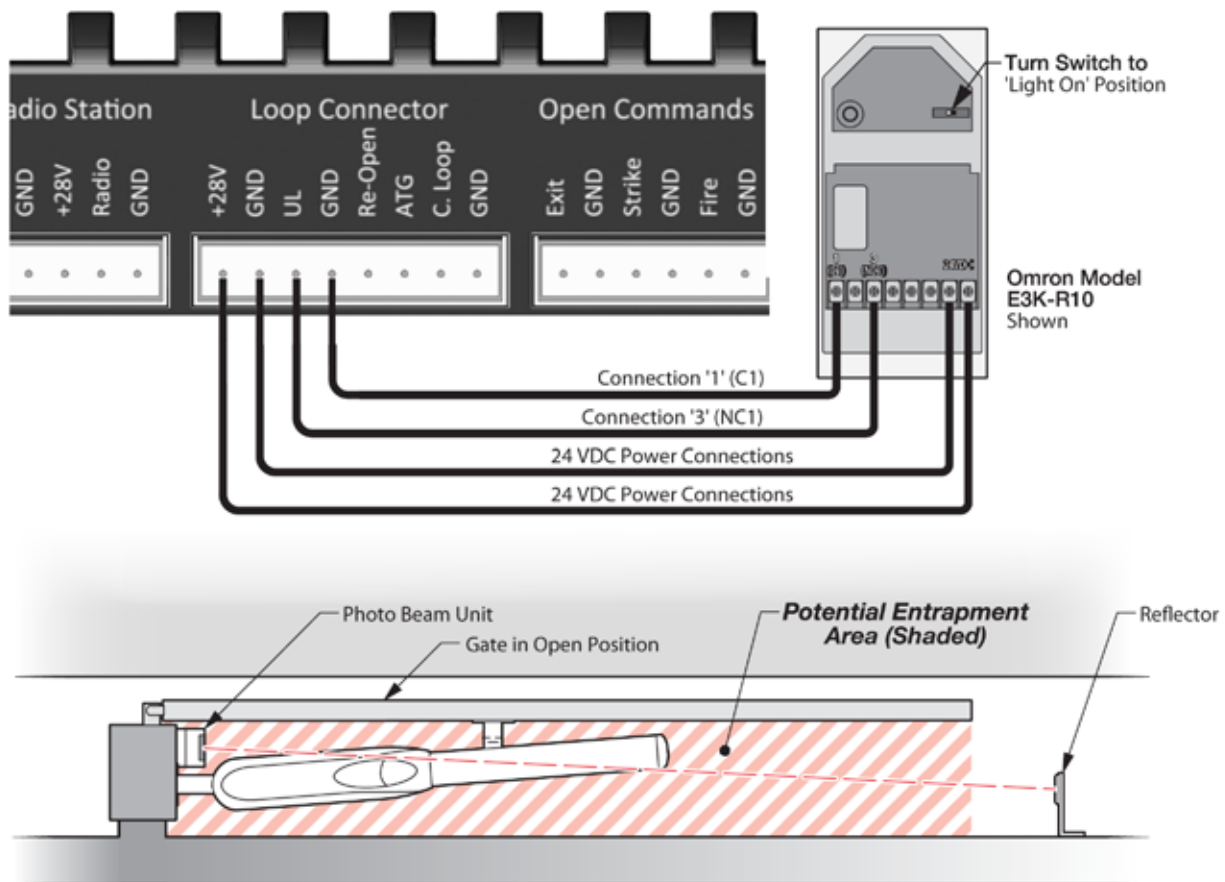
⚠ WARNING! Not Following these instructions may cause severe injury or death.

NOTE: This type on installation DOES NOT reverse the gate all the way back to its limits when the photo beam is obstructed. This installation is only to protect against entrapment and to comply with UL325.

Secondary Entrapment Protection

Photo Beam (non-contact sensor) Installation

- **Photo beams or like must be installed to reduce the risk of entrapment.**
- Use only Omron E3K-R10K4 photoelectric eye to comply with UL325
- Make the electrical connections of the photoelectric sensor as described here in this page.
- Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle, trips the sensor while the gate is still moving, and;
- One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.



Consult the installation manual for the UL325 device (photo beam or like) for detail information about the usage, installation and maintenance.

IMPORTANT SAFETY INFORMATION

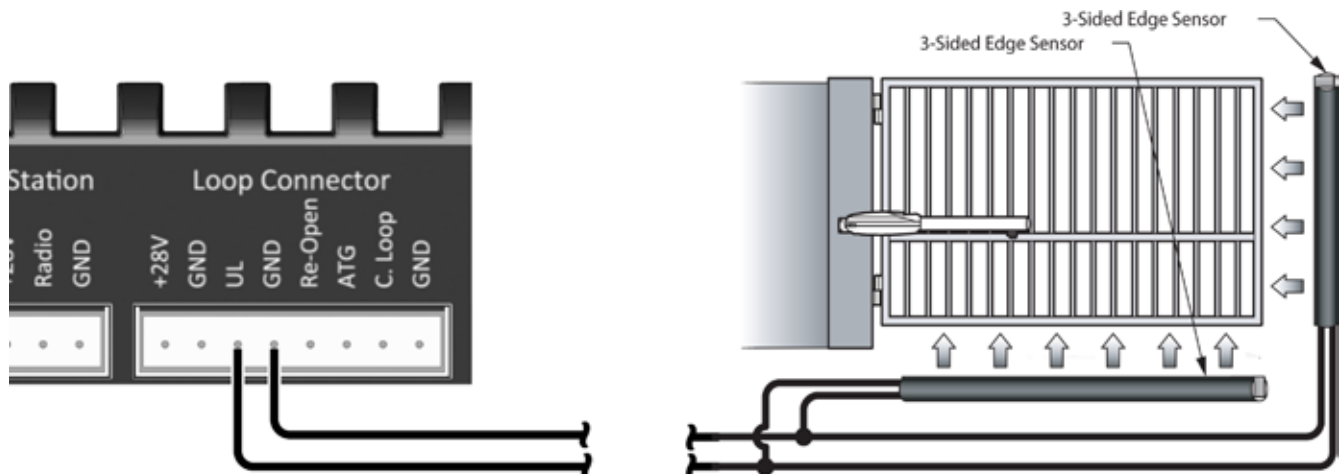
⚠ WARNING! Not Following these instructions may cause severe injury or death.

NOTE: This type on installation DOES NOT reverse the gate all the way back to its limits when the edge sensor is obstructed. This installation is only to protect against entrapment and to comply with UL325.

Secondary Entrapment Protection

Edge Sensor (non-contact sensor) Installation

- **Edge Sensors or like must be installed to reduce the risk of entrapment.**
- Use only Miller Edge 3-sided activation type MGR20 or MGS20 to comply with UL325
- One or more contact sensors shall be located on the inside and outside leading edge of a swing gate. Additionally, if the bottom edge of a swing gate is greater than 6 inches (152 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
 1. A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate operator is not subjected to mechanical damage.
 2. A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.



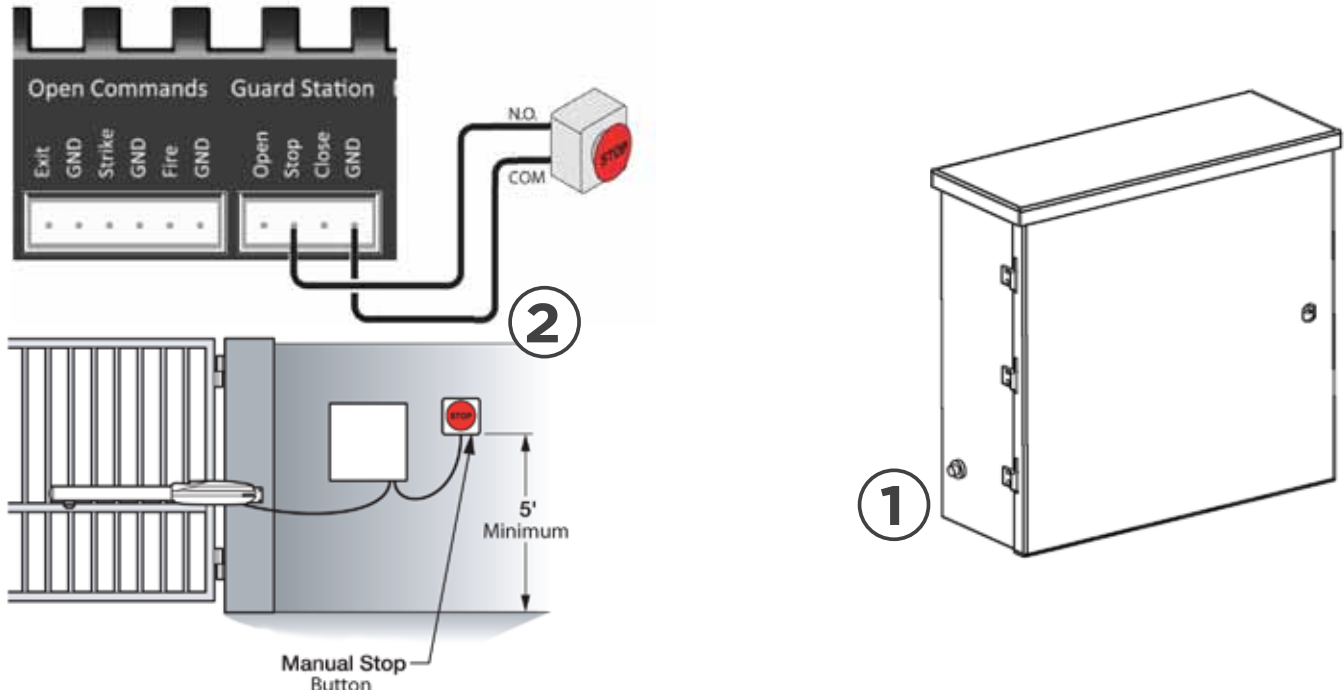
IMPORTANT SAFETY INFORMATION

⚠ WARNING! Not Following these instructions may cause severe injury or death.

Audible Alarm Reset Switch Installation

Manual Reset for the Audible Alarm

- UL325 standard requires an audible alarm to go off after two consecutive events detected by the primary entrapment protection of the gate operator (obstruction sensor).
- The audible alarm will continue to sound for 5 minutes or until a stop command gets actuated.
- The Stop command can be actuated in three different forms:
 1. Using the Built in Stop switch on the Control Box; or
 2. Using an External Stop button within the sight of the gate, away from moving parts of the gate and out of reach of children.
 - a. Controls intended for user activation must be located at least six feet (6') away from any moving part of the gate and where the user is prevented from reaching over, under, around, or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.
 - b. The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
 3. Using the Reset Button on the Electronic Control Unit that is externally accessible on the left side of the cabinet.



Warning Placard Installation

- All Warning Placards must be installed where visible in the area of the gate.
- A minimum of two placards shall be installed.
- A placard is to be installed in the area of each side of the gate and be visible.

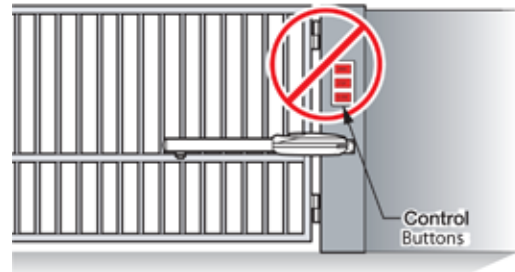


IMPORTANT INSTALLATION INFORMATION

⚠ WARNING: DO NOT allow pedestrian use of this gate.

Locate Control Buttons:

1. Within sight of the gate,
2. At a minimum height of 5 feet so small children are not able to reach it; and
3. At least 6 feet away from all moving parts of the gate.



Specifications

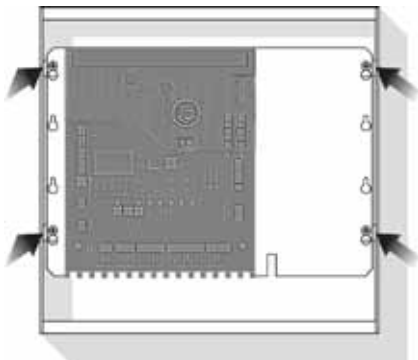
Power Requirements:

115v / 230v AC (4 amp / 2 amp)
Single Phase (50 Hz / 60 Hz)
24v AC / DC
Solar 24v 80w

ECU Box Installation

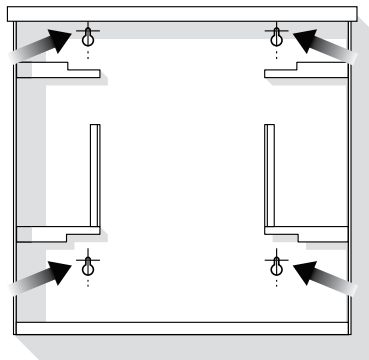
STEP 1

Disconnect the Siren and Stop Button Leads from the Control Board. Remove the Control Board Mounting Plate. The plate is held in the box by four screws.



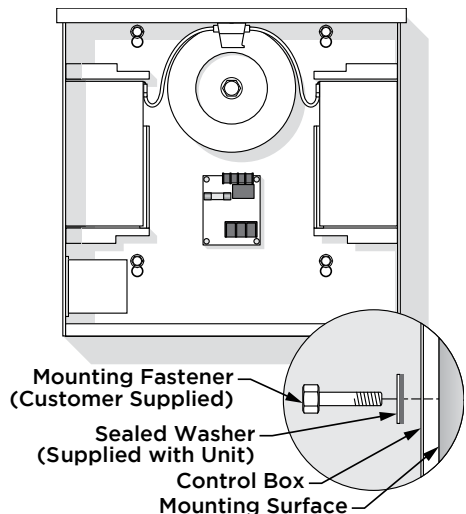
STEP 2

Position the ECU Box in the desired place and mark the mounting holes. Prepare the holes to receive the anchors/fasteners.
NOTE: Anchors are Not Supplied.



STEP 3

Position the ECU Box and secure it to the mounting surface using the Sealed Washers provided (rubber side of the washers against the inside of the control box).



⚠ WARNING: If the control box is not mounted properly it may fall, causing damage and/or injury. The Electronic Control Unit (ECU) weight is approximately 40 lbs. Be sure that the substrate being mounted to and the fasteners being used are appropriate to support the weight of the control box.

ELECTRICAL INSTALLATION

High Voltage Supply Option

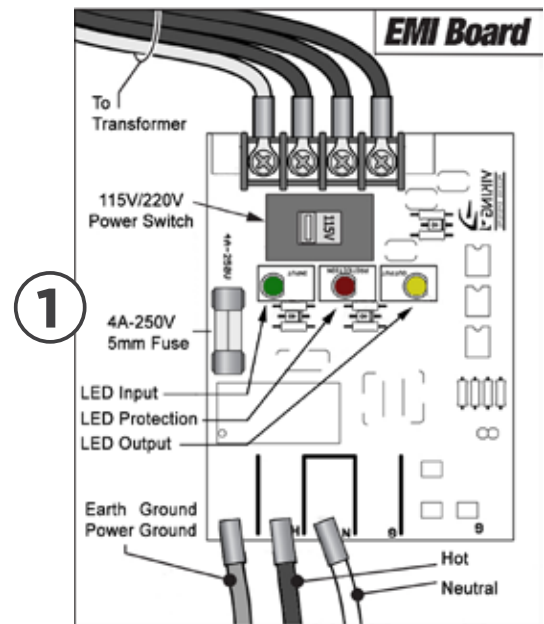
⚠ Caution: Always turn off power breakers when working with high voltage. DO NOT connect the “Power Harness” to the Control Board until the electrical installation is complete and ready for verification.

STEP 1

⚠ WARNING: SINGLE PHASE AC ONLY

At the “EMI Board”:

- Remove the Control Board Mounting Plate as described on page 13.
- TIP:** It is not necessary to dismount the control board from the Mounting Plate
- Set the “Voltage Selector” according to the voltage supply.
 - Connect the incoming power wires to the terminals as shown in the illustration.
 - Turn the main breaker back ON.
 - Verify that all three (3) Status LEDs are illuminated on the front panel of the Power Box.

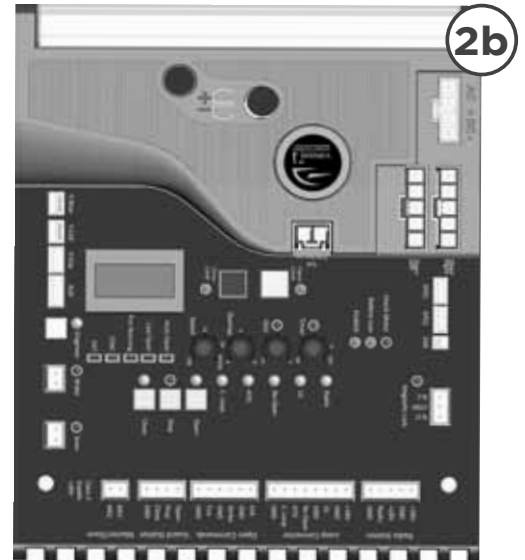


STEP 2

At the Control Board:

- Reinstall the Control Board and Control Board Mounting Plate.
- Connect the Power Harness and verify that “POWER” LED is illuminated solid.

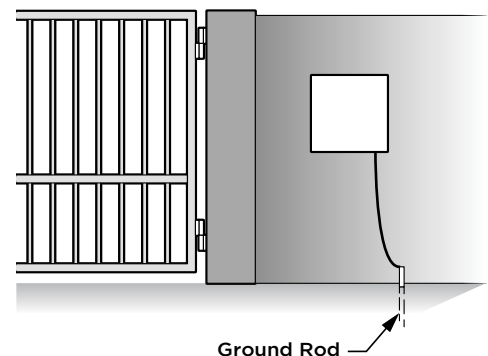
⚠ TECHNICAL TIP: If the “Power” LED is flashing or any of the 3 LEDs on the “EMI Board” are not illuminated, refer to the Troubleshooting pages 30-35.



Tips for proper ground installation:

To minimize the effects caused by lightning, follow these guidelines.

- Use a ground rod to provide a ground reference.
- Consult your city code and be aware of under-ground services in the site of the gate operator to prevent inconveniences.
- Always use a single bonding point for grounding.
- All ground wires must be as short and as thick as possible.
- Prevent unnecessary turns or loops in all ground wires.



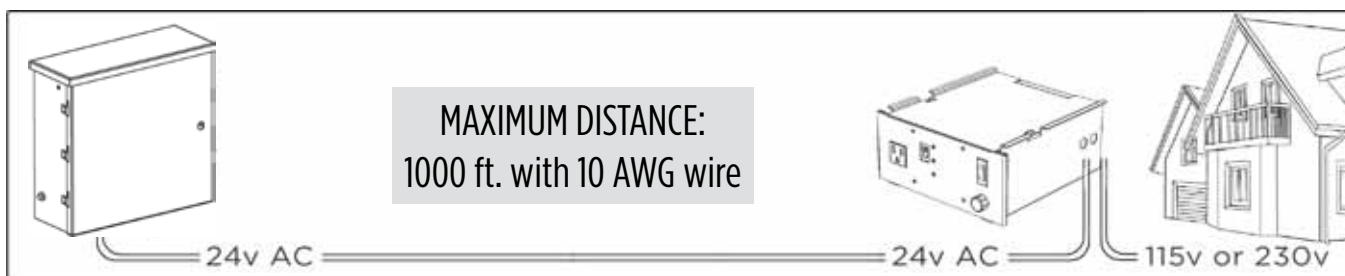
ELECTRICAL INSTALLATION

Low Voltage Supply Option

TIP: As an alternative to high voltage, the operator can be power by 24VAC. It is recommended to use Vikings Modular Power Box (**part # VNXMPB**) as the source.

⚠ Caution: Always turn off power breakers when working with high voltage. DO NOT connect the “Power Harness” to the Control Board until the electrical installation is complete and ready for verification.

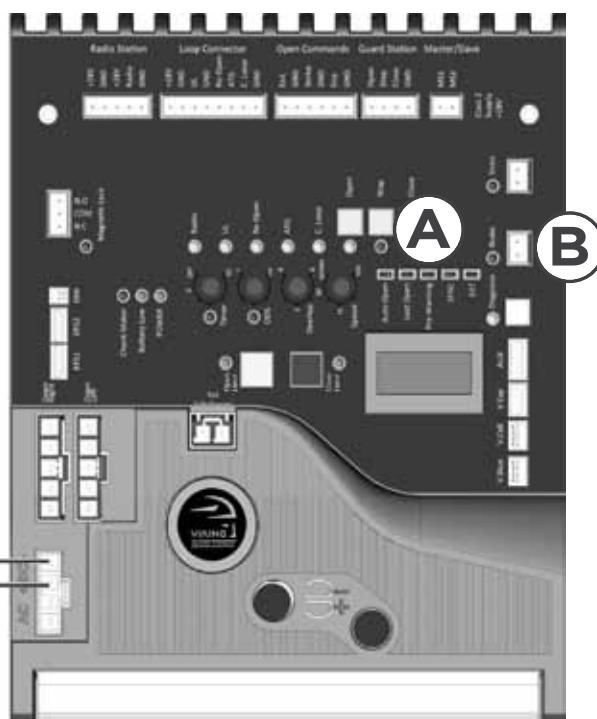
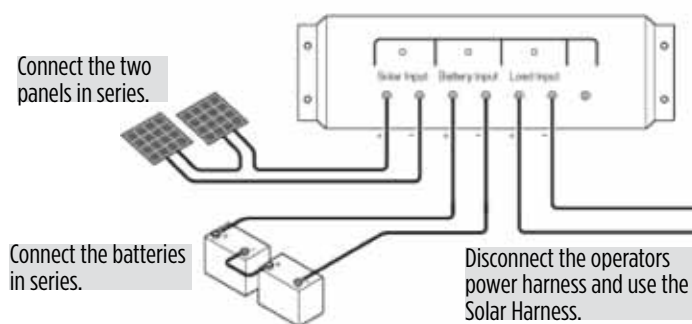
Install the “Modular Power Box” at the nearest high voltage source (115v or 230v single phase) and connect to the controller’s Power Harness. Follow local codes or guidelines.



Solar Supply Option

Vikings Solar Package (**part # VA-SOCHP**) is an efficient and effective solution to powering the operator with solar energy. (See page 40 for package details)

⚠ Tip: For increased solar efficiency:
By activating the “Pre-Warning” feature **(A)**, the “Brake” terminals **(B)** will provide power to all non-essential controls beginning 3 seconds prior to gate movement and while the gate is moving. (page 19)



⚠ IMPORTANT: The number of cycles achieved daily is dependent on the average solar radiation of the geographic location and the power consumption of all accessories being used. Increased panel and battery capacities may be required. See Appendix C on page 39 for more important information regarding solar applications.

ELECTRICAL INSTALLATION

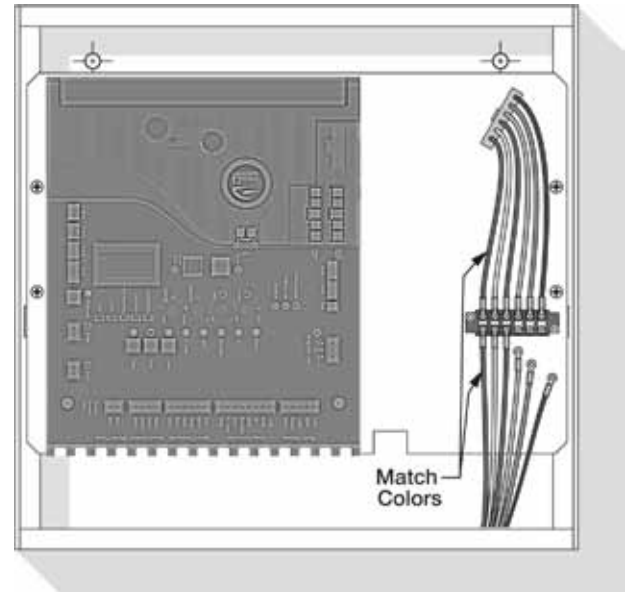
Motor Harness

NOTE: Refer to the gate operator's Installation Manual (G-5, X-9 or i-8) for specific instructions on how to connect the gate operator's wiring harness to the operator.

STEP 1

Connect the wires from the operator's wiring harness to the terminal block mounted next to the control board. Match wire colors to the terminal block.

⚠ Tip: If this controller is an i-8 model ECU, the blue and black wires from the operator's wiring harness are only required to be connected.



STEP 2

Connect the ground wire, (bare or non-insulated wire) from the operator's wiring harness, to both the Chassis of the ECU and the gate operator.

STEP 3

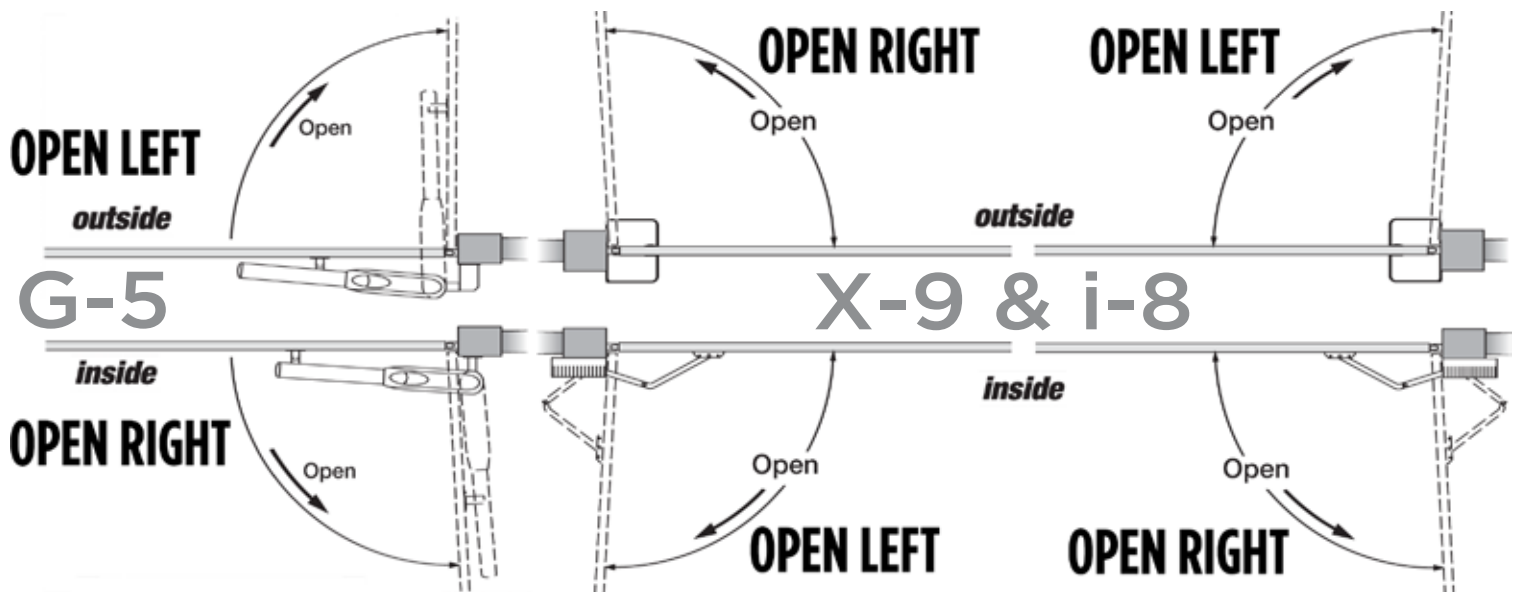
Connect the "Motor Harness" to the Control Board.

For G-5 operator

- a. "OPEN RIGHT" Connector if the gate opens to the **INSIDE** (**pull to open**).
- b. "OPEN LEFT" Connector if the gate opens to the **OUTSIDE** (**push to open**).

For X-9 and i-8 operators

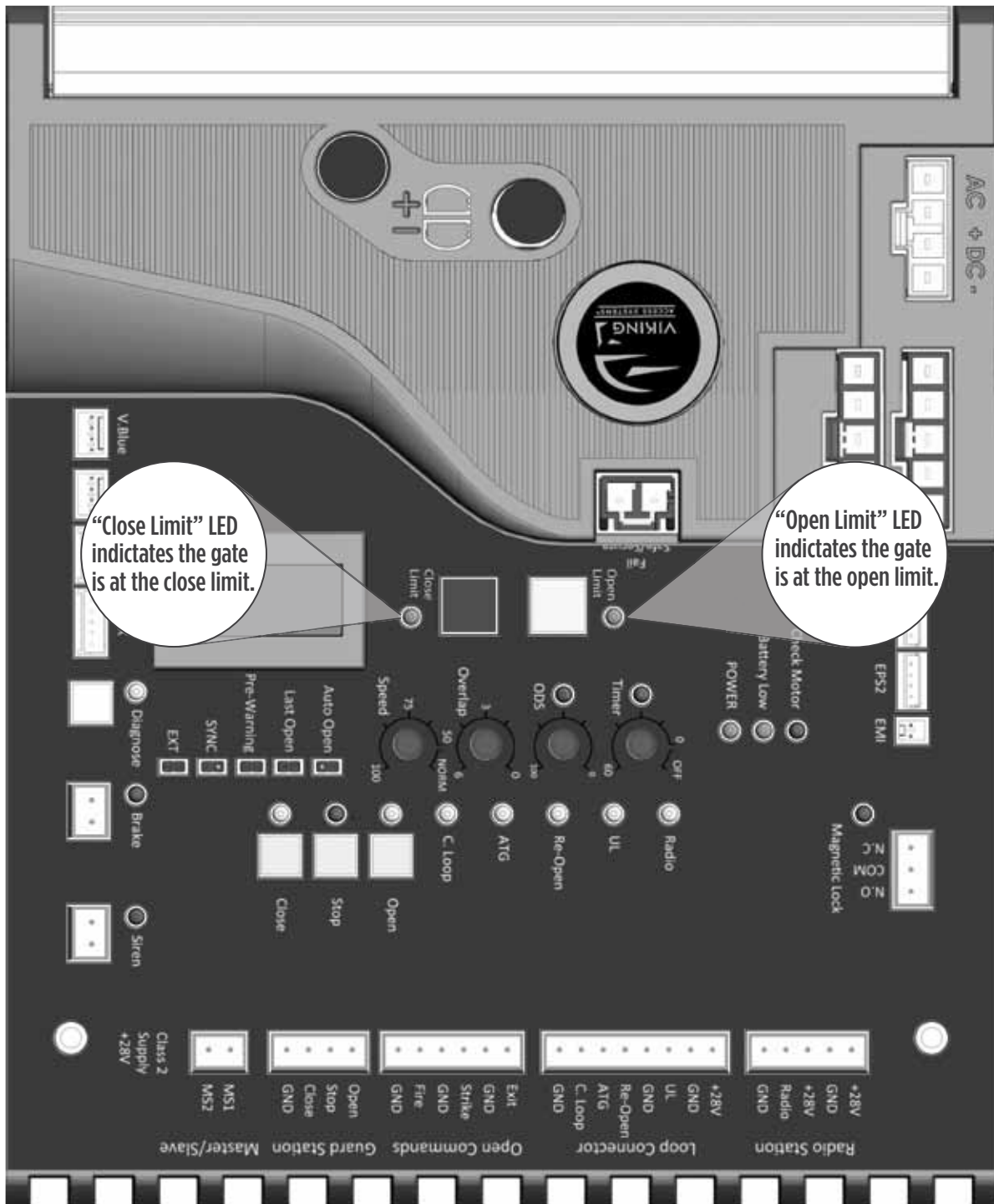
- a. "OPEN RIGHT" Connector if the gate opens **Inside to the Right** or **Outside to the Left**.
- b. "OPEN LEFT" Connector if the gate opens **Inside to the Left** or **Outside to the Right**.



LIMIT INDICATIONS

⚠ IMPORTANT: The gate operator (excluding i-8 model) uses mechanical limit switches and therefore the limits cannot be set electronically by this controller. The Limit Buttons on the control board have been rendered inactive by the controller. Refer to the gate operator's Installation Manual (G-5, X-9 or i-8) for specific instructions on how to set the limits for the gate operator model chosen.

⚠ TECHNICAL TIP: The Limit LEDs will illuminate solid when the gate reaches the corresponding limit switch on the gate operator. Both LEDs will flash, indicating a problem with the limit switches or wires.



CONTROL BOARD SETUP

Initial Settings

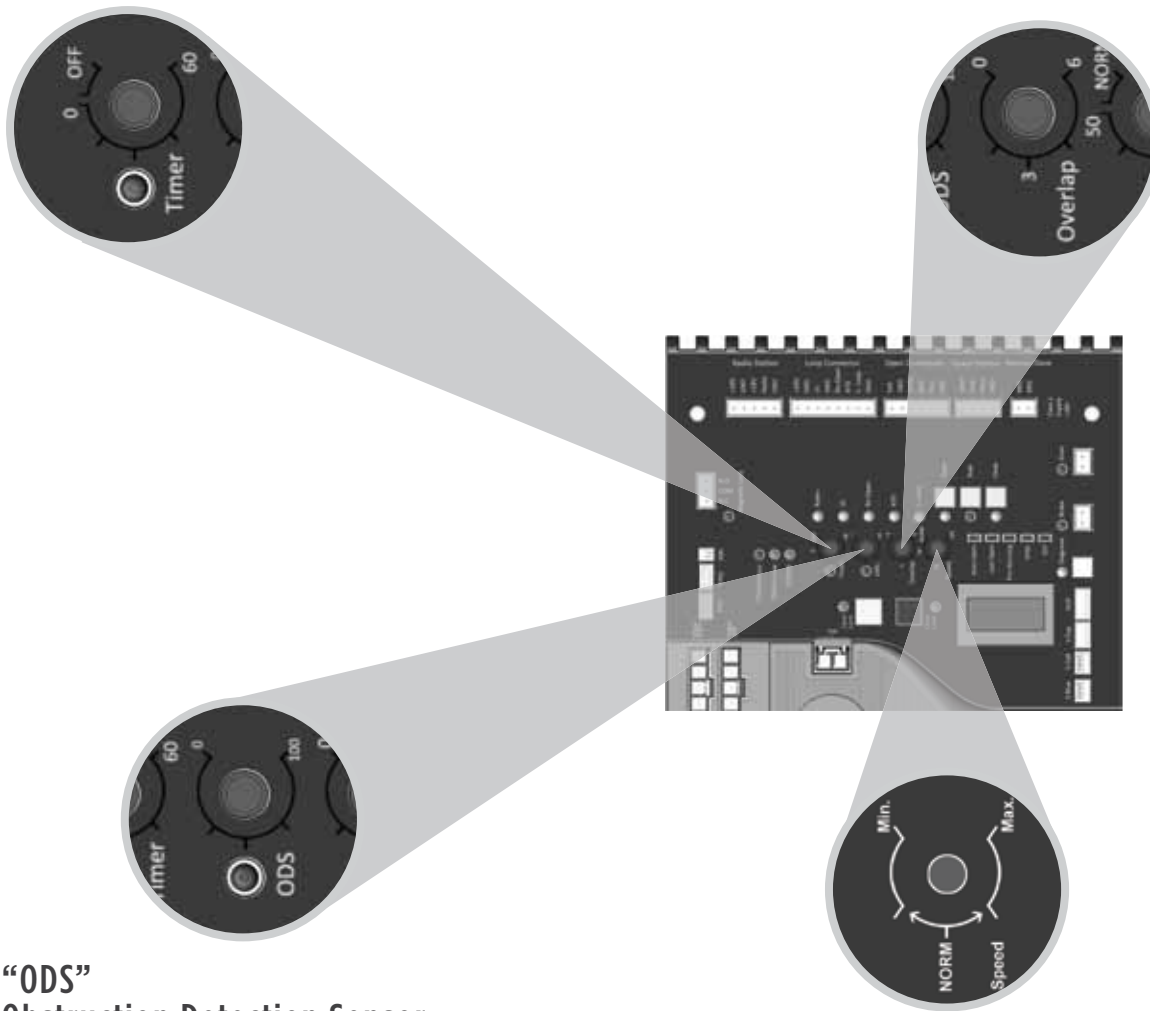
“Timer” Hold Open Timer

Automatically closes the gate after the selected amount of time from 1-60 seconds.

Turning the dial to between “0” and “OFF” will disable this feature, requiring a close command to close the gate.

“Overlap” Overlap Delay

Delays the gate from opening for the selected amount of time from 1-6 seconds.



“ODS” Obstruction Detection Sensor

Sets the amount of force required to trip the inherent obstruction sensor.

See page 20 for more details about this feature.

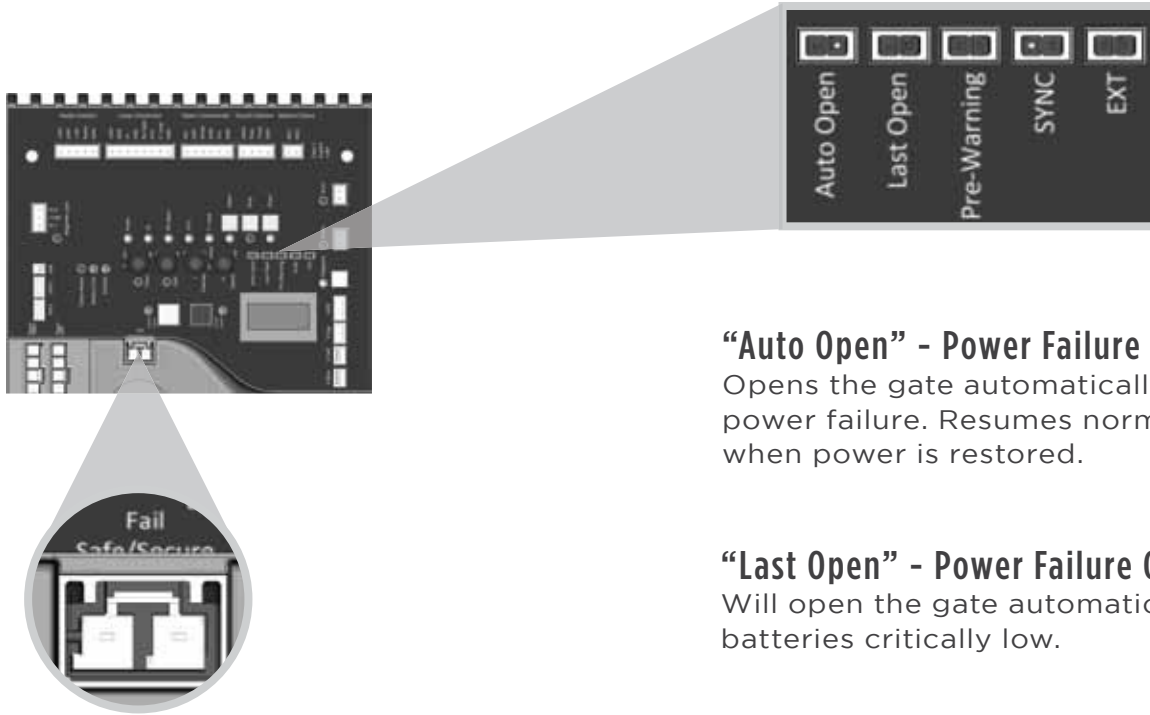
“Speed” Motor Speed

Increases or decreases the speed of gate travel.

CONTROL BOARD SETUP

Initial Settings

NOTE: Installing a shunt, or jumper, on the pins will activate the feature.



“Fail Safe/Secure”

During complete power failure, including battery power; determines the force required to manually move the gate.

- **Fail Safe Mode: (G-5 Only)**

By removing the wire-jumper plug from the “Fail Safe/Secure” connector:
The gate can move manually with a relatively low amount of force.

- **Fail Secure Mode:**

By inserting the wire-jumper plug into the “Fail Safe/Secure” connector:
The gate will not move manually.

“Auto Open” - Power Failure Option

Opens the gate automatically during power failure. Resumes normal operation when power is restored.

“Last Open” - Power Failure Option

Will open the gate automatically when batteries critically low.

“Pre-Warning” Initiates two options for an audio or visual warning 3 seconds prior to gate motion and will continue:

1. **Until gate reaches closed limit:**

“Magnetic Lock” terminals provide a contact between “COM” and “N.O”.

2. **While gate is moving:**

“Brake” terminals provide a 24v DC.

“Sync” Used only in conjunction with the Viking Barrier gate operator model B-12. Activating this feature allows for synchronized operation with the B-12 operator. See page 28.

“EXT” Available for future developments.

CONTROL BOARD SETUP

Obstruction Sensor (Primary Entrapment Protection)

⚠ IMPORTANT: The appropriate “ODS” setting is dependant upon the gate installation and construction. Set this feature accordingly. Additional Safety equipment should be used to reduce possible risk of injury or vehicle damage.

“ODS” Obstruction Detection Sensor

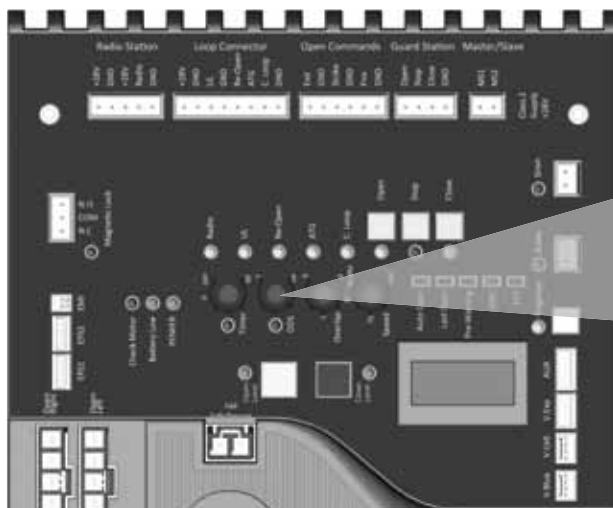
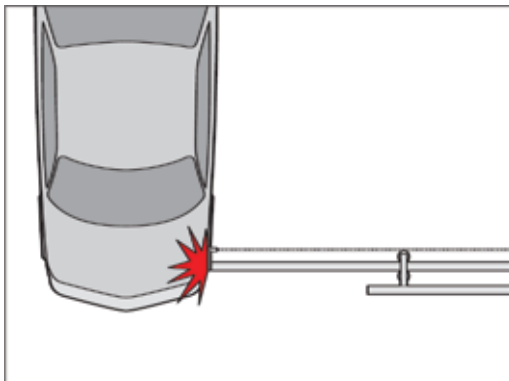
The Obstruction Sensor detects obstructions in the path of the traveling gate. The dial sets the amount of force required to activate the operators inherent obstruction detection.

Setting the dial to “0” will require the least amount of force to activate;

Setting the dial to “100” will require the maximum amount of force to activate.

UL325 standard requires an audio alarm to go off after two consecutive entrapment events sensed by the Inherent Entrapment Protection of the Gate Operator.

The audio alarm will sound for a period of 5 minutes or until the “Stop” Button or “Alarm Reset” Button is pressed. See page 12 for more information.



When the Obstruction Sensor detects an obstruction it will:

1. Stop the gate's movement and reverse it momentarily.
2. Bring the gate to a resting position.
3. Disable the Hold Open Timer feature until the Gate Operator receives a new command.

If second obstruction is detected before the gate reaches either limit it will:

1. Stop the gate's movement.
2. Disable the Gate Operator.
3. Sound the UL Alarm
4. A STOP command must be provided to disable the alarm and continue operation.

⚠ TECHNICAL TIP: The Status LED for the “ODS” will indicate the following when it has been triggered.

- A. Solid:** Obstruction.
Detected a sudden or abrupt increase in gate resistance.
- B. Flashing:** Overload.
Detected a more subtle, but sustained increase in gate resistance.

CONTROL BOARD SETUP

Viking Heater

The operator has an integrated heater. Activate this feature when the operator is used in application temperatures down to -20°F (-29°C).

To set the heater to turn on at the Close Limit:

1. Use the “Diagnose” button to scroll through the LCD menu to “HEATER CLS”
2. Press and hold the “Stop” button on the control board.
3. Press and release the “Diagnose” button to turn this feature ON and OFF.

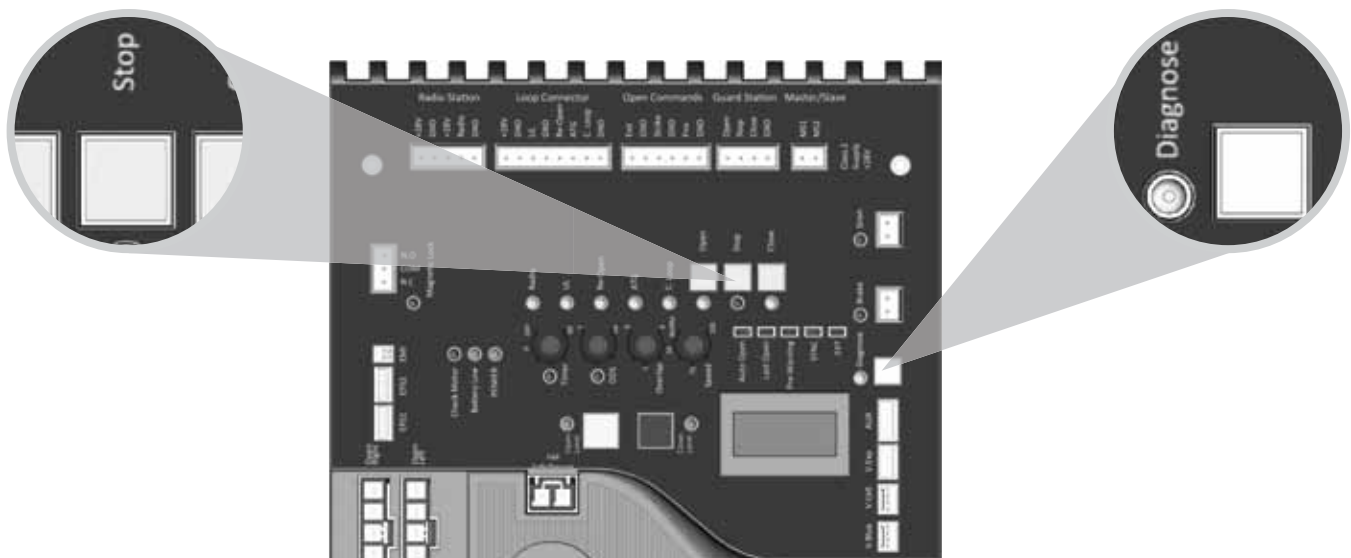
To set the heater to turn on at the Open Limit:

1. Use the “Diagnose” button to scroll through the LCD menu to “HEATER OPN”
2. Perform steps 2-3 as described above.



NOTE: If the application requires the gate to be held open for any reason, set the HEATER ON for both limit positions.

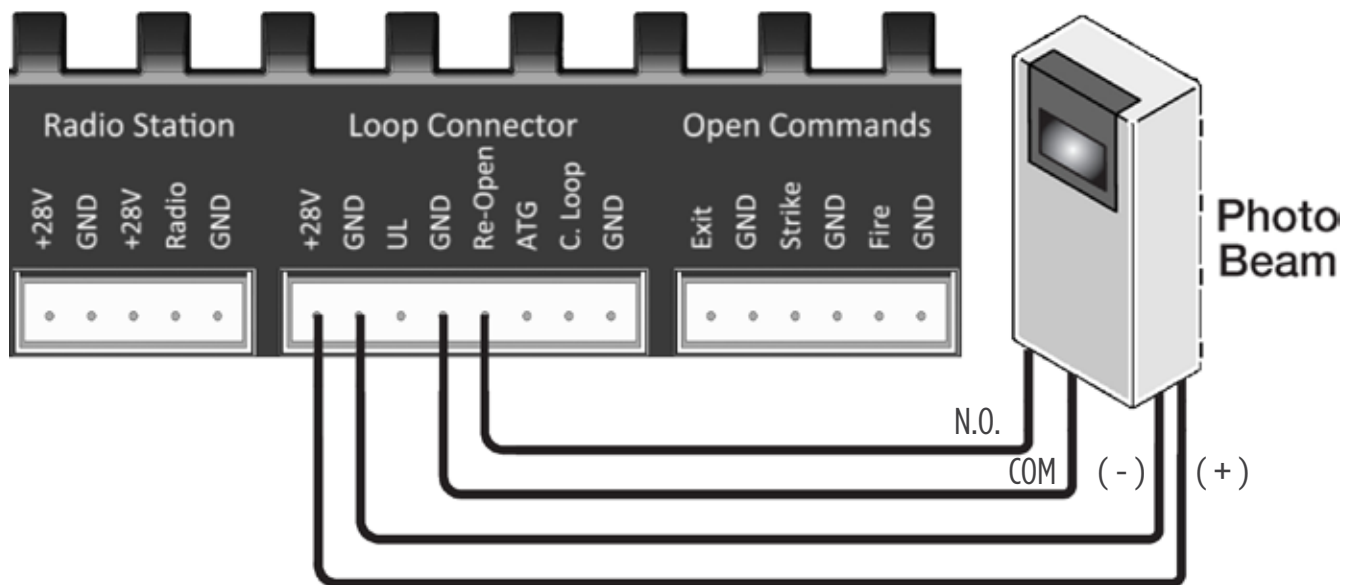
⚠ IMPORTANT: A POSITIVE STOP **must** be used on the gate at the limit position(s) the HEATER has been set for.



ACCESSORY CONNECTIONS

Re-Open Photo Beam (vehicular Safety)

NOTE: This type of photo-beam installation will stop then RE-OPENS the gate all the way to the open limit when the an beam is obstructed. Intended for vehicular safety ONLY. For the purpose of pedestrian entrapment, see pages 10-11.



Note regarding Photo Beam types:

Fail-Safe type - connect the “**N.C.**” terminal of the photo beam to the “**Re-Open**” terminal on the control board. Typically, these are the reflective type photo beams.

Fail -Secure type - connect the “**N.O.**” terminal of the photo beam to the “**Re-Open**” terminal on the control board. Typically, these are the transmitter/receiver type photo beams.

Check for proper operation:

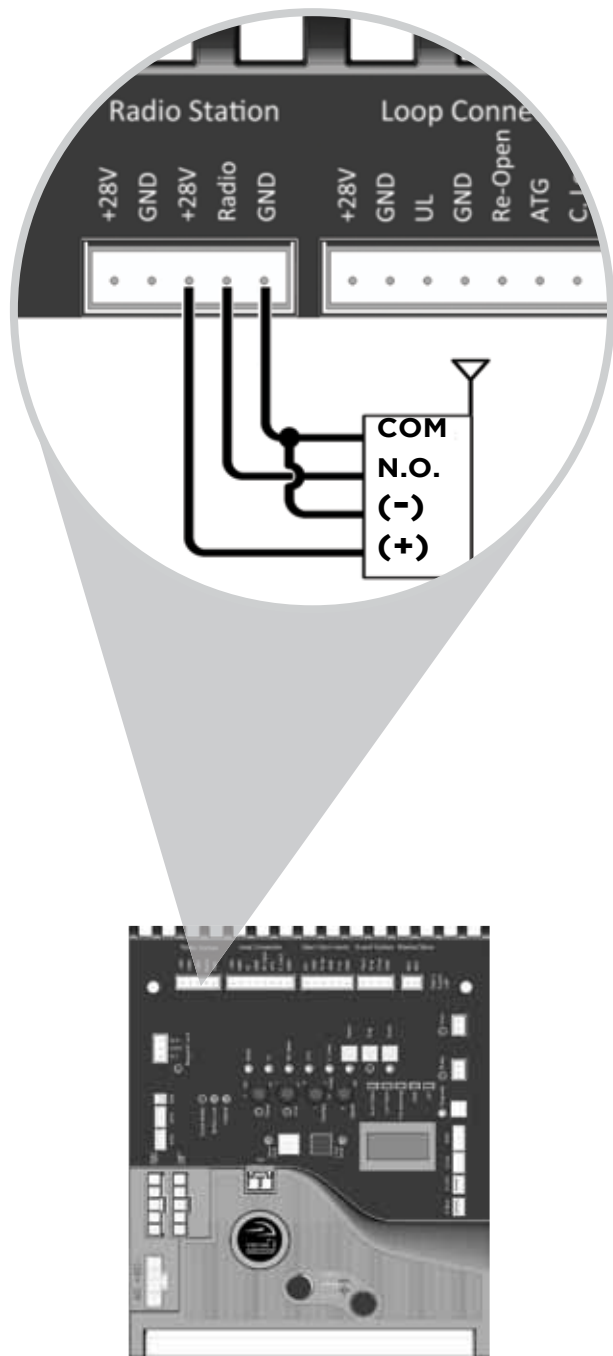
The “**Re-Open**” LED will illuminate solid while the beam is obstructed and remain off when the beam is unobstructed.

⚠ TECHNICAL TIP: For more information regarding accessory connections to the control board and individual input terminal functions, refer to “**Appendix (A)**” pages 36-37.

ACCESSORY CONNECTIONS

Radio Receiver (Typical)

⚠ IMPORTANT: The Hold Open “Timer” setting (page 18) effects how the gate will respond to the radio receiver command.



⚠ TECHNICAL TIP: For more information regarding accessory connections and terminal functions, refer to “Appendix (A)” on pages 36-37. See “Appendix (B)” on page 38 for connecting common radio receiver models.

The control board provides two modes of operation that a radio receiver can control the gate:

Open-Stop-Close

1. By having the radio receiver connected as illustrated and with the Hold Open Timer OFF (see page 18):

Every command of the radio transmitter will control the gate as follow:

- a. First command opens the gate,
- b. Second command stops the gate and
- c. Third command closes the gate
- d. Any subsequent commands will continue in the same order to control the gate.

This type of configuration is not recommended for a commercial installations.

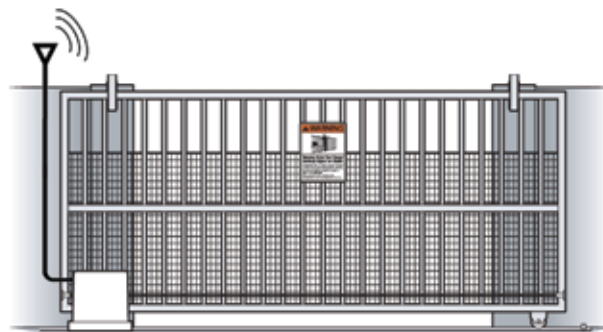
Open Only

2. By having the radio receiver connected as illustrated and with the Hold Open Timer ON (see page 18):

Each command of the radio transmitter is **ALWAYS AN OPEN COMMAND** to the gate.

For maximum reception range:

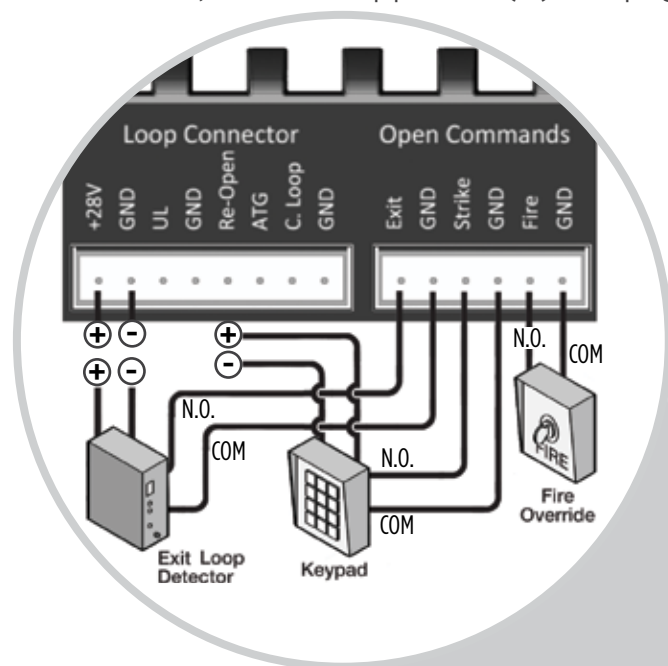
Locate the radio antenna to the top of the gate column.



ACCESSORY CONNECTIONS

Anti-Tail Gate, Open Commands & Guard Station

⚠ TECHNICAL TIP: For more information regarding accessory connections and terminal functions, refer to “Appendix (A)” on pages 36-37.



Open Commands

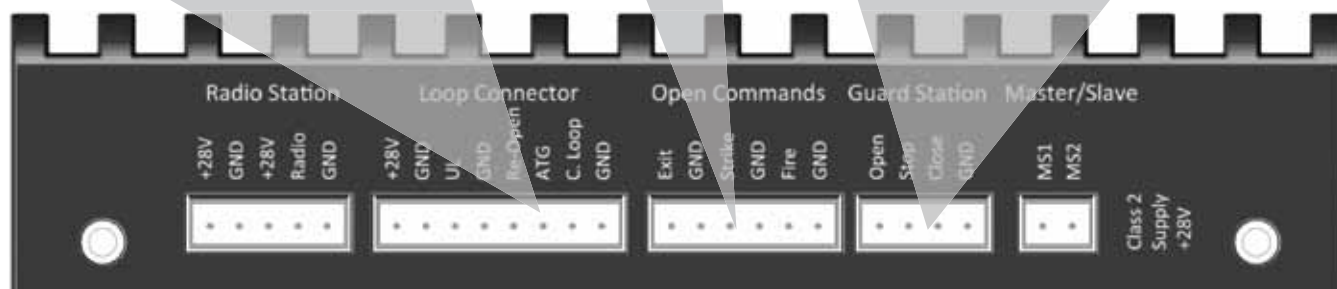
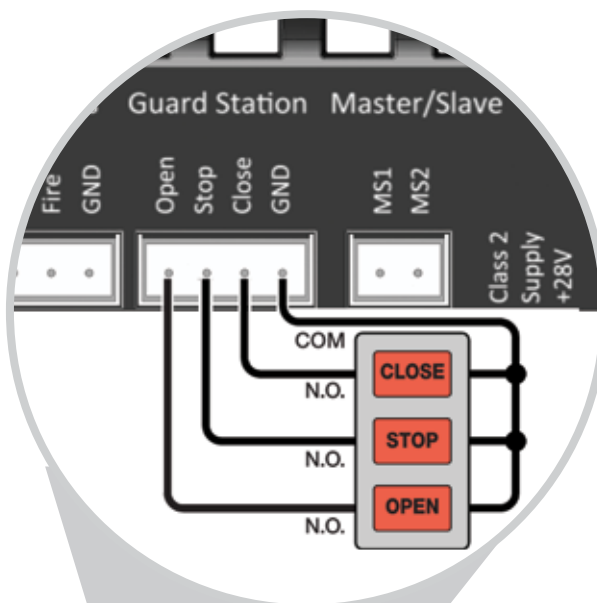
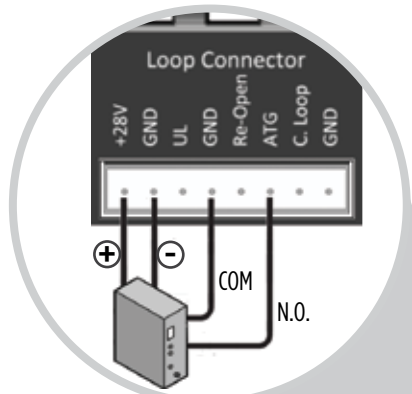
“Exit”, “Fire” and “Strike” input terminals all provide an open command to the control board. Any device connected as shown will open the gate.

Guard Station

⚠ All three buttons must be a Normally Open “N.O.” type of switch, and can share the same common “C” connection to “GND”.

“ATG” Anti-Tailgate

This input will stop the gate when the vehicle triggers the sensor, then closes the gate when the vehicle leaves the sensor, preventing unauthorized vehicles from entry.



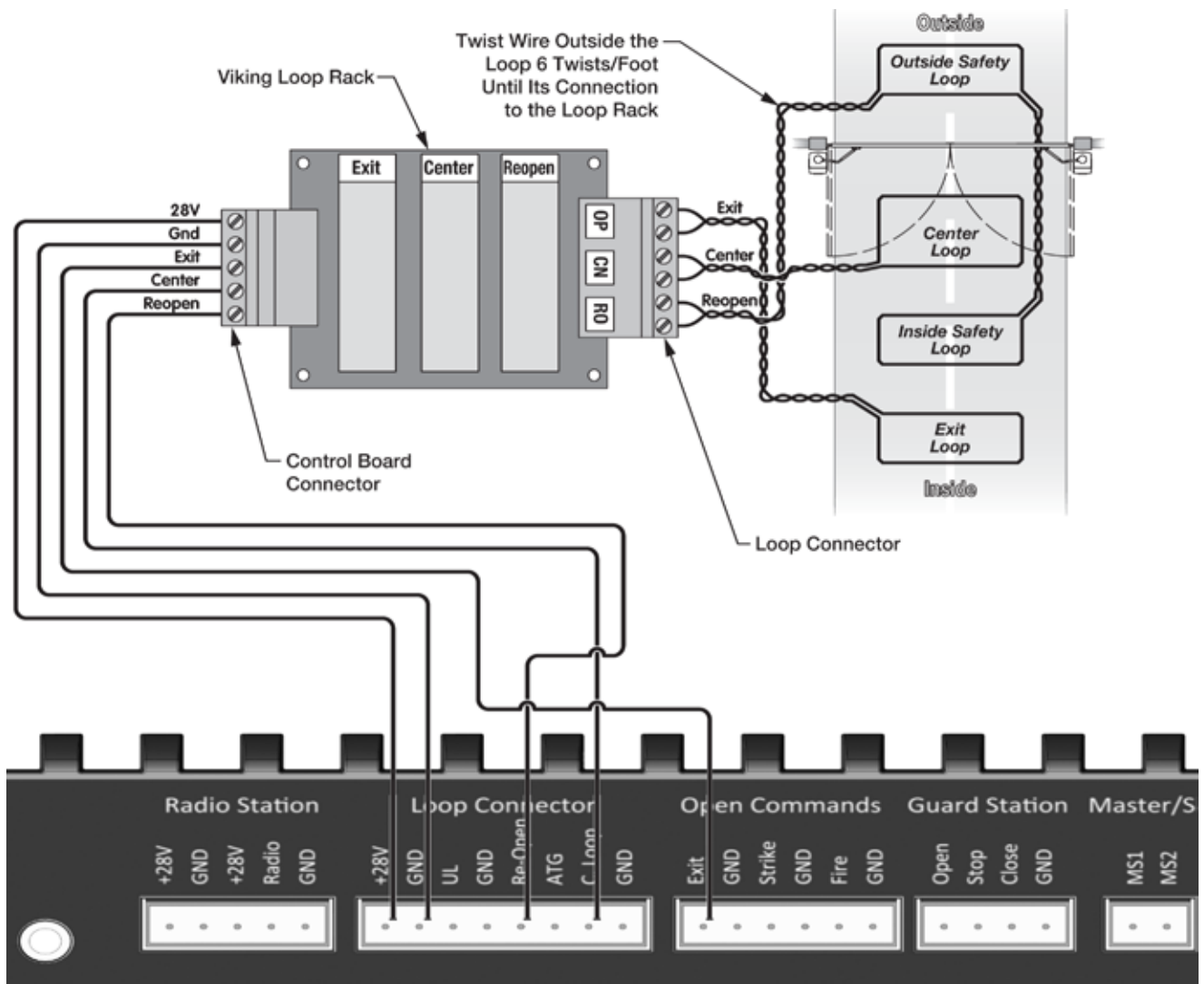
ACCESSORY CONNECTIONS

Viking Loop Rack

TIP: This operator may be equipped with a pre-wired **Loop Rack** that plug-in type loop detectors can be connected to. This provides a convenient alternative to the box type loop detectors that would need to be wired to the control board. Viking does not provide either type of loop detectors.

Loop Rack: Part # VA-LR

Loop Rack Wiring Harness: Part # VA-LRH



ACCESSORY CONNECTIONS

Guidelines for Loop Installation

1. Prevent sharp corners in the geometry of the loop sensor.
2. Install the appropriate number of turns for your loop geometry based on the loop perimeter. Use Table C (below) as a guide.
3. Use XLP (cross-linked-polyethylene) type of wire. This wire reduces the effects of moisture and other environmental events in altering the functionality of the vehicular loop detector.
4. Twist the lead wire at least 6 turns per foot.
5. Use BACKER-ROD to minimize damage to the loop detector wire prior to using the sealant.
6. Place the loop detector wire and adjust the sensitivity of the vehicular loop detector unit in a way to minimize the effects of the gate over the loop detector wire.

⚠ IMPORTANT! Some of the following parameters may affect the proper functionality of the vehicular loop detector.

Consult the manufacturer of the vehicular loop detector and/or loop wire.

- Gate size
- Number of turns in the loop sensor wire
- Distance of the loop sensor wire to the gate at either at the open or close position

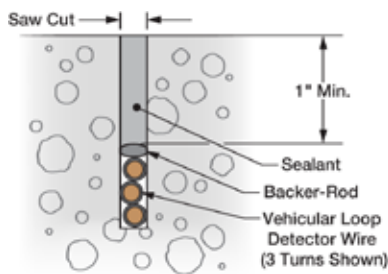
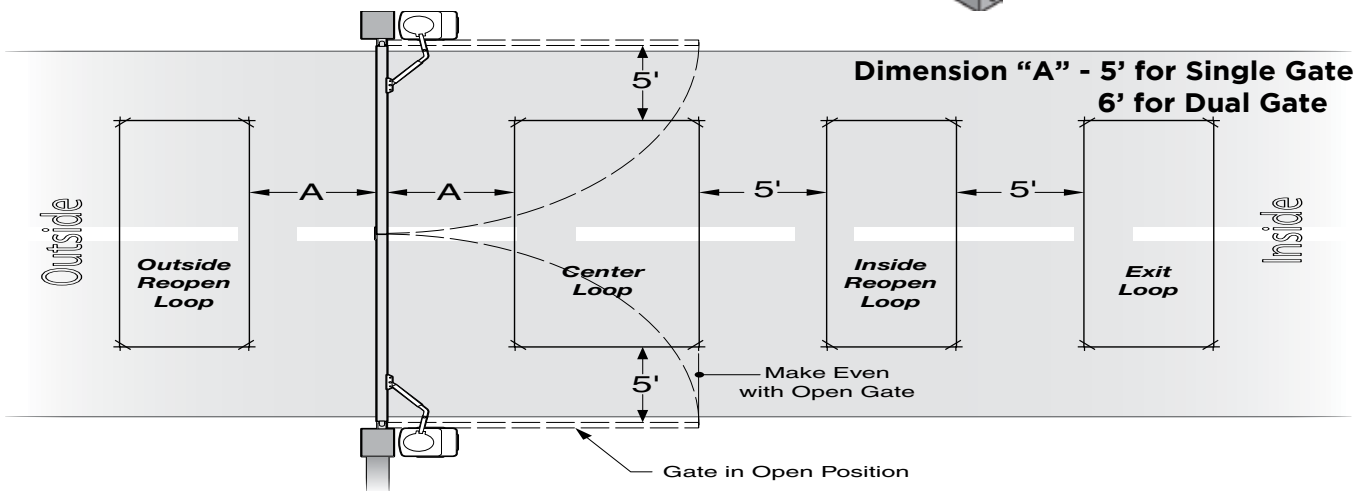
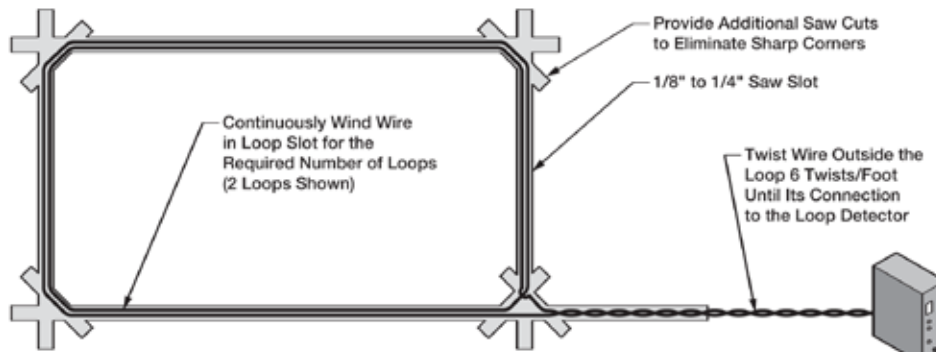


Table C - Recommended Number of Turns

Perimeter (ft.)	Number of Turns
10	5
20	4
30-40	3
50-100	2

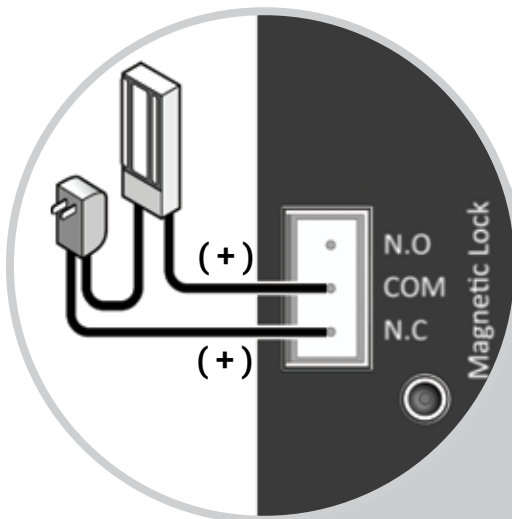


ACCESSORY CONNECTIONS

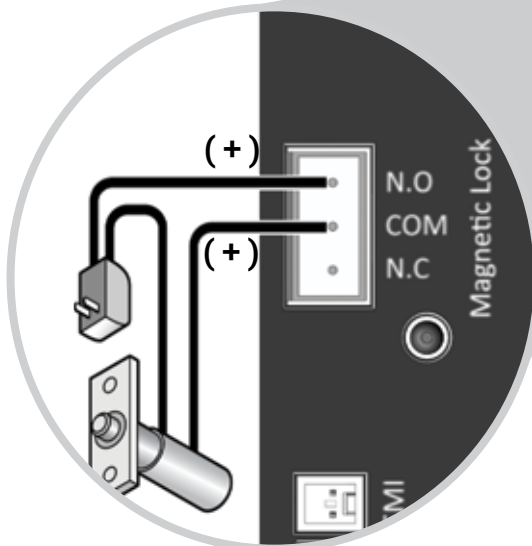
Magnetic Lock, Lock Solenoid

NOTE: Viking Access Systems does not provide external gate lock devices. These items can be purchased from your dealer or distributor.

Magnetic Lock



Lock Solenoid

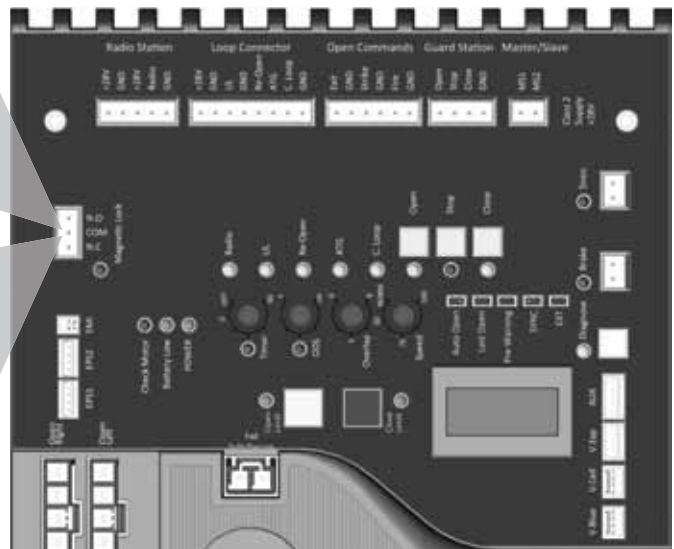


Power

Do not use the 24v DC power supplied by the control board. An external power supply, or plug-in transformer, must be used for the magnetic lock or lock solenoid.

This will prevent rapid drainage of the battery in the event of power failure.

The control boards "Magnetic Lock" relay is rated for 10A-250v AC.



SYNCHRONIZATION WITH B-12

Barrier Arm (B-12) Synchronization Option

NOTE: The Control Board provides a convenient solution for applications that require synchronized operation with the Viking Barrier Arm Operator model B-12.

This type of application opens and closes in the follow pattern:

1. Open Command is provided only to the Viking B-12 Barrier Arm Operator.
2. The Barrier Arm will delay to open until this Gate Operator reaches its Open Limit.
3. The Gate Operator will delay to close until the Barrier Arm reaches its Close Limit.

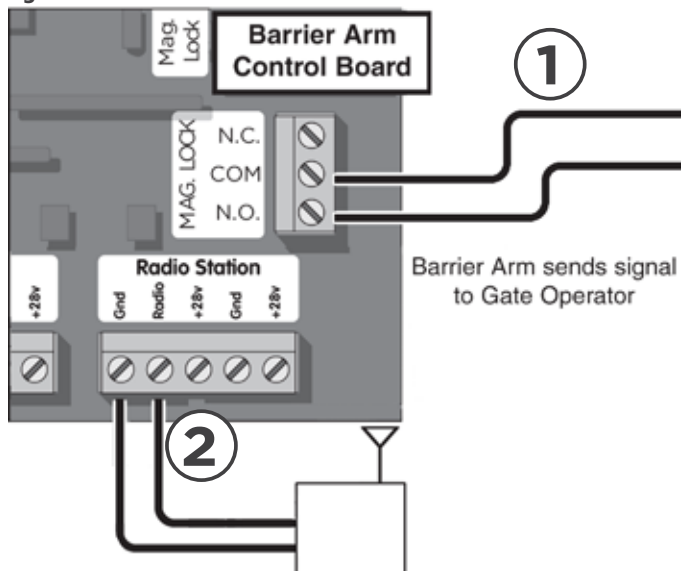
STEP 1 (Figure A & B)

Connect the Gate Operator to the Viking B-12 Barrier Arm Operator as illustrated.

STEP 2 (Figure B)

On the Gate Operator Control Board, activate Sync Mode by placing a jumper on to the pin headers labeled “SYNC”.

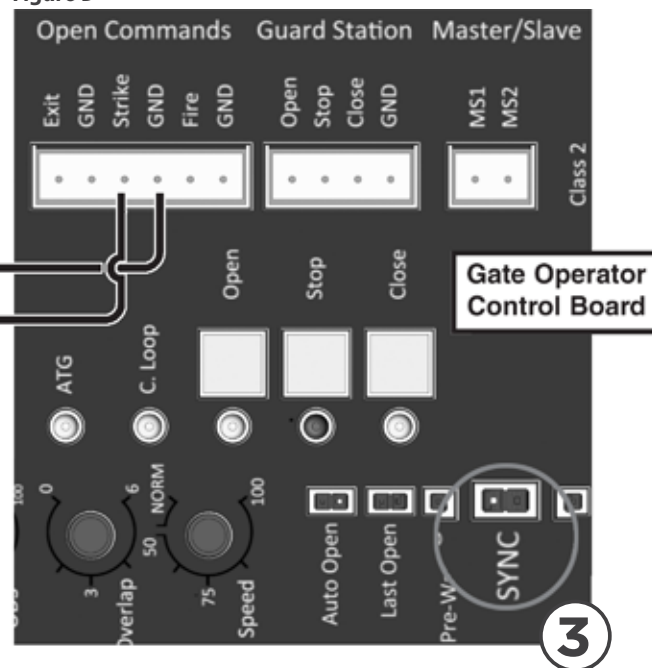
Figure A



STEP 2 (Figure A)

At the B-12 Barrier Arm Operator, connect the primary device that will be used as the OPEN input.

Figure B



STEP 4 (Figure C & D)

Connect Viking B-12 Barrier Arm Operator to the Gate Operator as illustrated.

Figure C

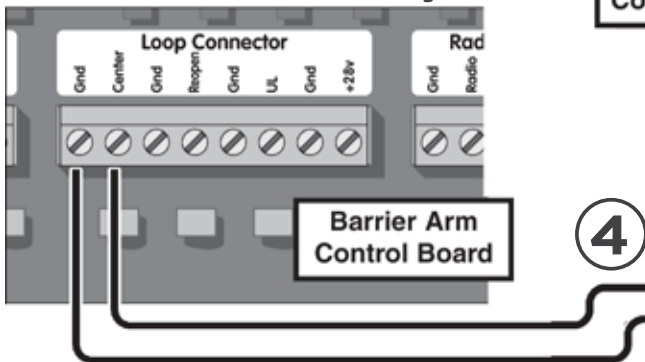
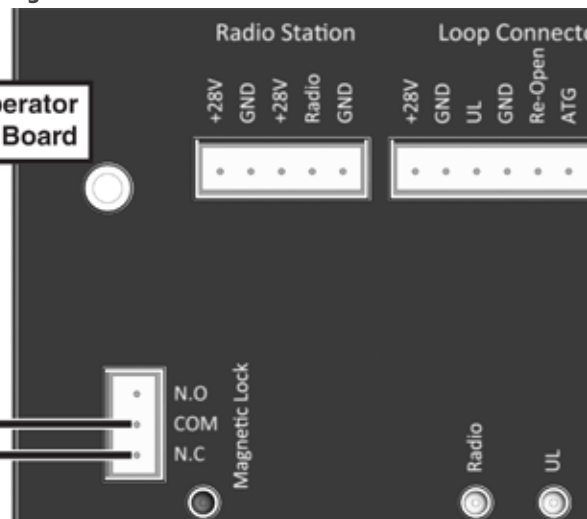


Figure D

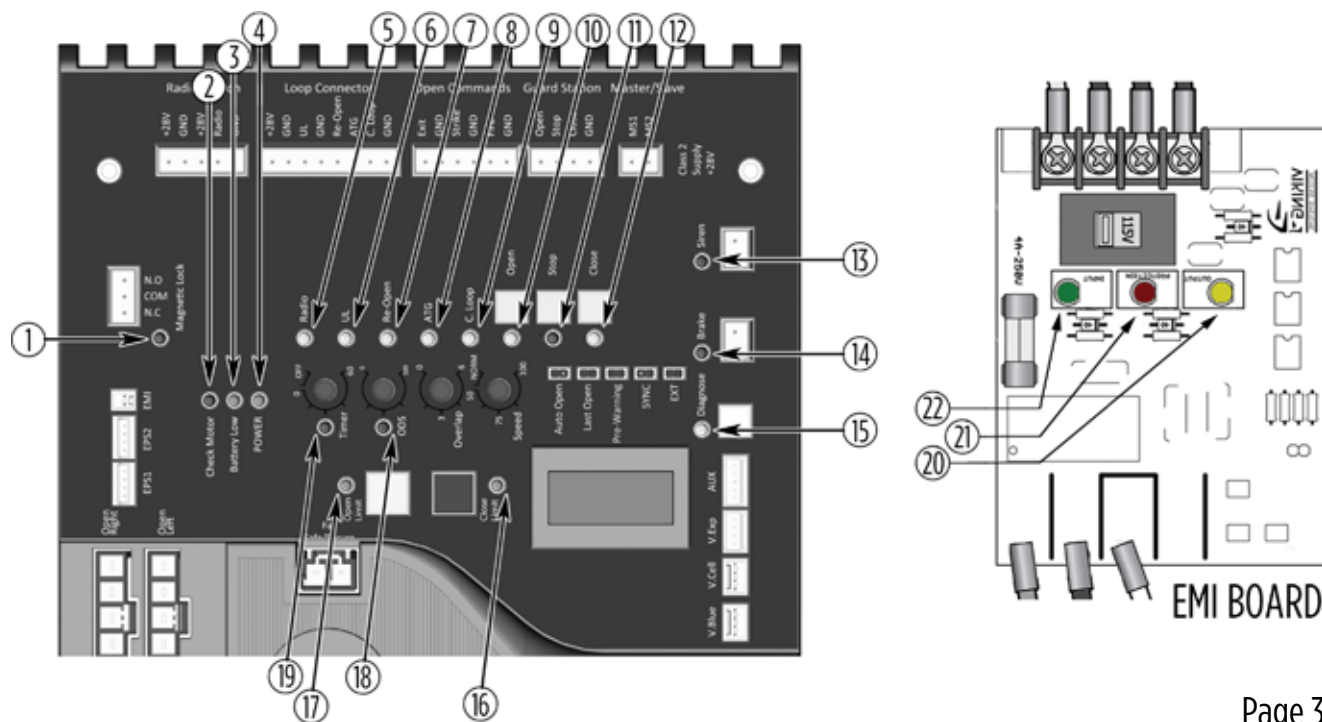


(THIS PAGE LEFT BLANK INTENTIONALLY)

TROUBLESHOOTING

LED References

In addition to the LCD Display, the control board LEDs monitor the various circuits of the control board. Use the table below to identify the corresponding “TS Ref#” and refer to page 32-35 for further troubleshooting.



				Page 35
#	LED	Status	Meaning	TS Ref#(s)
1	"Magnetic Lock"	OFF	At Closed Limit and Magnetic Lock Relay state is closed across "COM" & "N.C". (page 27). Gate should be at the Close Limit.	
		SOLID	Not at Closed Limit and Magnetic Lock Relay state is closed across "COM" & "N.O". (page 27). Gate should not be at the Close Limit	
2	"Check Motor"	OFF	Normal Condition.	
		SOLID	The control board is sending power to the motor but this circuit is not complete or closed.	7, 8
3	"Battery Low"	OFF	Normal Condition.	
		SOLID	Batteries are low. Check power supply to the operator. (pages 14-15).	1, 2
		FLASHING	Batteries critically low. Check power supply to the operator. (pages 14-15).	1, 2
4	"POWER"	SOLID	Normal Condition.	
		FLASHING	Operator is running on batteries only (pages 14-15).	1, 2
		OFF	No power to control board.	1, 2, 4, 5
5	"Radio"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Radio terminal (pages 23, 36).	9, 10
6	"UL"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the UL terminal (pages 12-13, 36).	9, 10
7	"Re-Open"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the Re-Open terminal (pages 22, 25, 36).	9, 10
8	"ATG"	OFF	Normal Condition.	
		SOLID	Control Board is receiving an input from a device connected to the ATG terminal (pages 24, 36).	9, 10

TROUBLESHOOTING

LED References

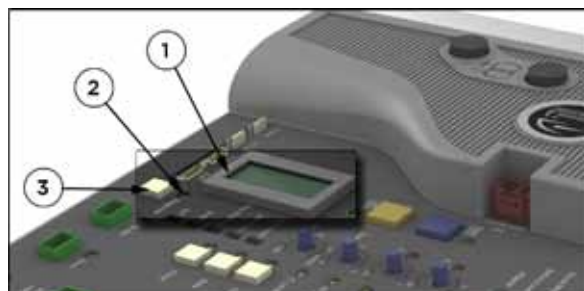
Use the table below to identify the corresponding “TS Ref#” and refer to page 32-35 for further troubleshooting.

				Page 41
#	LED	Status	Meaning	TS Ref#(s)
9	“C Loop”	OFF	Normal Condition.	9, 10
		SOLID	Control Board is receiving an input from a device connected to the C Loop terminal (pages 32, 42).	
10	“Open”	OFF	Normal Condition.	9, 10
		SOLID	Control board is receiving an input for a device connected to any of the following input terminals: Exit, Fire, Strike or Open (pages 31, 42).	
11	“STOP”	OFF	Normal Condition.	9, 10
		SOLID	Control Board is receiving an input from a device connected to the Stop terminal (pages 31, 42).	
12	“Close”	OFF	Normal Condition.	9, 10
		SOLID	Control Board is receiving an input from a device connected to the Close terminal (pages 31, 42).	
13	“Siren”	OFF	Normal Condition.	11, 13, 1, 2
		SOLID	Second consecutive obstruction has been detected. (page 26).	
		FLASHING	Batteries are critically low.	
14	“Brake”	OFF	No voltage output on these terminals at the moment.	
		SOLID	There is 24v DC output on these terminals at the moment.	
15	“Diagnose”	OFF	Normal Condition	
		FLASHING	Errors have been detected; Check LCD Display for messages (page 38-40).	
16	“Close Limit”	OFF	Gate is not at the close limit position.	6
		SOLID	Gate is at the close limit position.	
		FLASHING	Indicates a problem with the limit switches or wires	
17	“Open Limit”	OFF	Gate is not at the open limit position.	6
		SOLID	Gate is at the open limit position.	
		FLASHING	Indicates a problem with the limit switches or wires	
18	“ODS”	OFF	Normal Condition.	11, 13, 1, 2
		SOLID	Obstruction has been detected. (page 26).	
		FLASHING	Overload has been detected. (page 26).	
		RAPID	Control board settings have been overwritten by a Viking wireless device.	
19	“Timer”	OFF	The close timer is turned OFF or gate is not at the open limit if the timer is turned ON. (page 24).	9, 10
		SOLID	Gate is at Open Limit, Timer is turned ON and counting down to close. (page 24).	
		FLASHING	Gate is at Open Limit, Timer is turned ON but is not timing out due to a conflicting command. (page 24).	
20	“AC VOLTAGE OUTPUT”	SOLID	Normal Condition.	2
		OFF	There is no output voltage from the Modular Power Box.	
21	“PROTECTION WORKING”	SOLID	Normal Condition.	
		OFF	EMI Board is damaged and circuit is not protected . Replace EMI Board.	
22	“AC VOLTAGE INPUT”	SOLID	Normal Condition.	1
		OFF	Incoming power to Modular Power Box is not sufficient.(page 18).	

TROUBLESHOOTING

LCD Display References

The control board is equipped with a LCD Display that provides operator information, current conditions, settings, diagnostics and error messages. Use the table below to identify the corresponding "TS Ref#" and refer to page 35 for further troubleshooting.



1. Error Messages will be displayed first.
2. The "Diagnose" LED will flash consecutively indicating how many Error Messages are available.
3. Press the Diagnose button to manually scroll through all of the Messages.

Page 35
TS Ref #s

LCD MSG Meaning

VIKING
ACCESS

Welcome Message

MODEL

Indicates the Model of the unit. G5, X9 or I8

System Status Messages

GATE IS
IDLE

Gate is stopped between limits

GATE IS
OPENING

Gate is opening

GATE IS
CLOSING

Gate is closing

GATE IS
OPENED

Gate is at the limit open position

GATE IS
CLOSED

Gate is at the limit close position

STOP BY
OBSTRUCT

Gate stopped due to an obstruction sensor event

11, 12,
13

STOP BY
OVERLOAD

Gate stopped due to an overload of the gate system

11, 12

OVERLAP
TIMING

Gate is waiting for the overlap time

HOLDING
... SEC

Gate is at the limit open position and timing to close - The display shows the actual time left - prior to time-out

LCD Display References

Page 35
TS Ref #s

LCD MSG	Meaning
Multi Meter Displays	
MOT AMP ---- A	This is the motor current amperage during operation
MOT VOLT ---- VDC	This is the actual motor voltage during operation
AC VOLT ---- VAC	This is the actual low voltage AC to the Control Board from the transformer
CHARGE ---- VDC	This is the charging voltage to the batteries
BAT VOLT ---- VDC	This is the charging voltage when Battery Switch is OFF or the battery voltage when the low voltage AC is discontinued to the Control Board
Board Settings Messages	
SPEED xx%	Shows the percentage of speed set by the Speed adjustment on the control board. (pg. 18)
OVERLAP -- SEC	Shows the number of seconds set by the Overlap Adjustment on the control board. This feature is not available on slide gate operator models
ODS SENS ---- %	Shows the amount of force required to trip the obstruction sensor. (pg. 18, 20)
TIMER -- SEC	Shows the time delay to hold the gate open at the limit open position, before starts closing the gate. (pg. 18)
HEATER CLS OFF	The Integrated Heater has been disabled for the Closed Limit (pg. 21)
HEATER CLS ON	The Integrated Heater has been enabled to turn on at the Close Limit position (pg. 21) "H" will be displayed while it is heating
HEATER OPN OFF	The integrated Heater has been disabled for the Open Limit (pg. 21)
HEATER OPN ON	The Integrated Heater has been enabled to turn on at the Open Limit position (pg. 21) "H" will be displayed while it is heating

TROUBLESHOOTING

LCD Display References

Page 35
TS Ref #s

LCD MSG	Meaning	
Error Messages		
ERR AC LOW	Indicates the AC line is low in voltage - AC voltage is below 90 VAC (or 180 VAC for 220 VAC operation).	1, 3, 4
ERR AC HIGH	Indicates the AC line is high in voltage - AC voltage is above 130 VAC (or 260 VAC for 220 VAC operation).	1, 3
ERR AC NO AC	There is no AC voltage detected to the EMI Board from the 115/230 supply	1
ERR CHRG HIGH	Potential problem with the charging voltage from the control board.	1, ?
ERR CHRG CHECK 4A	a) 4 Amp Fuse is blown b) or there is a problem with the control board	18, ?
ERR BAT LOW	The battery is low	1, 2, 3, 4
ERR FUSE 15 AMP	15 Amp motor fuse is blown	7, 11, 12
ERR EMI NO EMI	No EMI board detected	15
ERR EMI NO FUSE	4 Amp main fuse is blown on Power Supply Panel Assembly	2
ERR EMI NO AC	There is no AC voltage detected from the EMI Board	20
ERR EMI PROTECT	Lightning strike protection for the EMI Board has been damaged	?

TROUBLESHOOTING

Solutions

Begin the troubleshooting process by referring to the error messages on the LCD Display and/or the Status LEDs on the control board. Use pages 30-34 to identify the Troubleshooting Reference # (TS Ref#) then reference the table below.

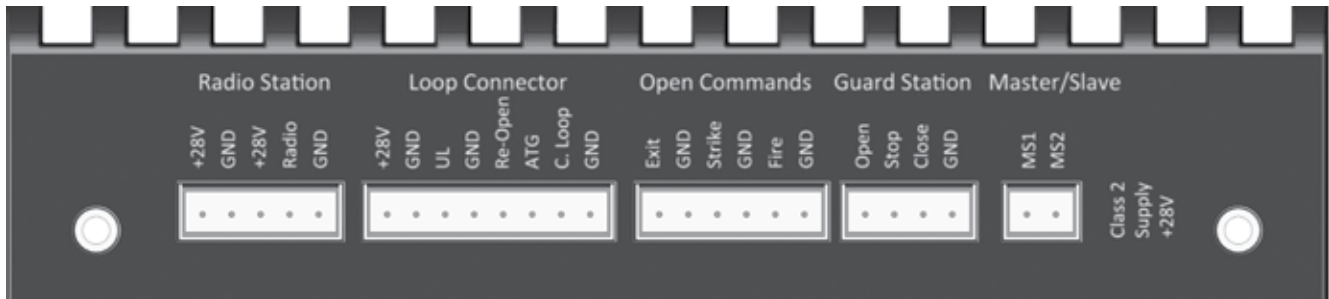
TS Ref#	CHECK	Page Ref#
1	Check that the high voltage power supplied to “EMI Board” is within range. 100v-120v or 200v-240v	pg. 14
2	Remove and check EMI Fuse for continuity.	pg. 14
3	Check that the “Voltage Selector”, on the EMI Board, is set according to the high voltage power supply. 115v AC or 230v AC	pg. 14
4	Not applicable to this model	
5	Check that the Power Harness is connected to the control board.	pg. 4, 14
6	Check that the limit circuits are Normally Closed (N.C.). Check the limit switch.	
7	Check Motor Fuse on the control board.	pg. 4
8	Check that the operator is not in Manual Release mode	
9	Check the Status LEDs to determine if the control board is receiving an input from any external devices or if the “ODS” has been triggered.	pg. 20, 22-25, 30-31
10	Remove the external devices from the control board to determine if the control board is responding to an input or problem with the external device or wiring.	pg. 22-25, 30-31
11	Check the “ODS” setting on the control board.	pg. 12, 20
12	Check that the gate can be move manually with low resistance throughout its full range of motion.	pg. 8
13	Check the limit position.	
14	Not applicable to this model	
15	Check the EMI cable is properly connected to the “EMI” Connector on the control board.	pg. 4
16	Check the LCD Display for Error Messages	pg. 34
17	Not applicable to this model	
18	Check 4 Amp fuse on the control board	pg. 4
19	Manually adjust any setting on the Control Board to clear all wireless override settings	
20	Check for 24VAC out from the Toroidal Transformer and Power Harness	pg. 4, 14
?	The Control Board or EMI board may be damaged. Call Viking Technical Support for further assistance	

Appendix (A)

Access Control Connections

Power Connections

The control board provides a 24v DC output to power external devices and controls. Alternatively, for devices that require a power supply other than 24v DC, the operators Power Box contains a convenient 120v AC receptacle to connect a plug-in transformer.



Terminals Connections and Input Functions:

“C” = Common
“N.O.” = Normally Open

Viking Terminal		Function	Device Terminal	
“+28v”	-----	DC Positive	-----	“+”
“GND”	-----	DC Negative	-----	“-”
“GND”	-----	Relay Common	-----	“C”
“Radio”	-----			“N.O.”
	If “Timer” OFF:	Open - Stop - Close		
	If “Timer” ON:	Open / Stop while closing		
“UL” (see pages 10 & 11)				“N.O.”
	If Input is brief:	Stops gate then Reverses 12 inches		
	If input is longer:	Stops gate, does not reverse		
“Re-Open”				“N.O.”
	If stopped:	No function		
	If closing:	Stops then Opens gate		
“ATG” Anti-Tailgate				“N.O.”
	Input is received:	Stops gate if closing		
	Input is released:	Closes gate to prevent tailgating		
“C. Loop”				“N.O.”
	If not at open limit:	No function		
	If at open limit:	Prevents gate from Closing		
“Open”, “Exit”, “Fire” & “Strike”				“N.O.”
	If stopped:	Opens gate		
	If closing:	Stops then Opens gate		
“Stop”				“N.O.”
	If traveling:	Stops gate		
“Close”				“N.O.”
	If stopped:	Closes gate		
	If traveling:	No function		

⚠ TECHNICAL TIP: Each input Terminal (i.e. Radio, Exit, Re-Open, UL) has a corresponding Status LED that when illuminated indicates an input is currently being provided to the terminal and the gate is responding accordingly. (See pages 30-31 LED References)

Relays In General

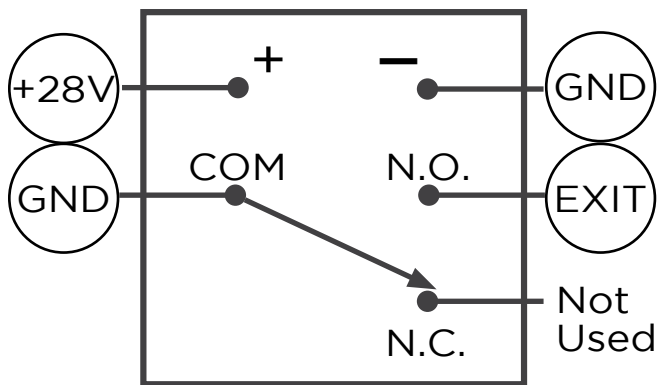
NOTE: Viking Access Systems does not provided the external safety devices and access controls. These items can be purchases from your dealer or distributor.

In General

In regards to the Viking control board, all external safety devices and access controls contain, and are, simple relays that provide an input to the Viking control board when the device is activated.

When these devices are activated, their internal relays create a contact, or short, between the “C” and “N.O.” terminals. This contact is what provides the command to the Viking control board.

⚠ TECHNICAL TIP: Viking uses the Normally Open “N.O.” contact from the device, excluding “fail-safe” type photo beams. In such instances, the Normally Closed “N.C.” will be used instead.



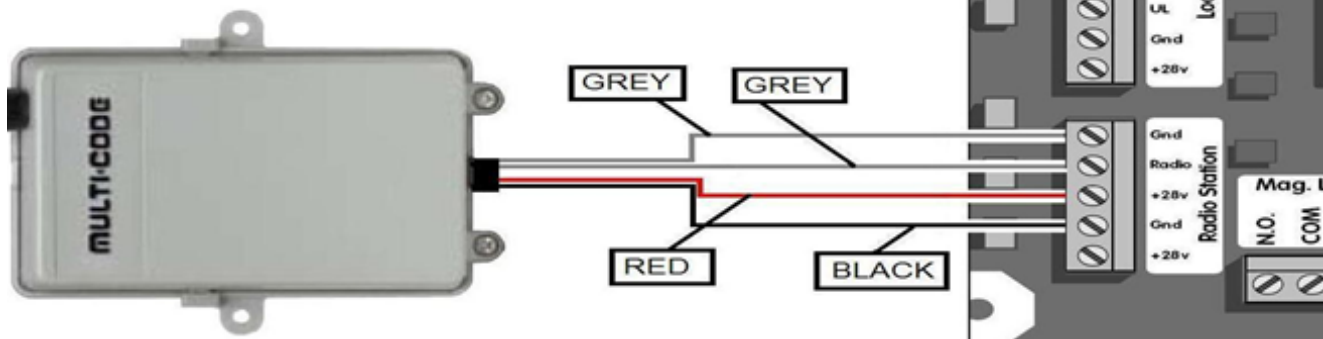
Glossary of Terms

- 1. Terminal:** Wire Connections.
- 2. Input Terminal:** On the Viking control board, the terminal which is labeled for a specific command (Re-Open, Exit, Radio, etc.). The N.O. contact from the access control device is to be connected to the Input Terminal.
- 3. Terminal Block:** On the Viking control board, a removable block containing multiple terminals.
- 4. Relay:** The component of an access control or safety device that provides an input or command to the Viking control board.
- 5. “C” Relay Common Terminal:** This is the relay terminal that makes contact (a short) to the N.O. terminal when the device is activated. *Always wire this relay terminal to any “GND” terminal at the control board.*
- 6. “N.O.” Relay Normally Open Terminal:** The relay terminal that has an open contact to “C” while the relay is not activated, and a closed contact when the relay is activated. *Almost always wire this relay terminal to an “Input Terminal” at the control board,*
- 7. “N.C.” Relay Normally Closed Terminal:** The relay terminal that has a closed contact to “C” while the relay is not activated, and an open contact when the relay is activated. *This terminal is rarely used.*
- 8. Relay Coil:** Contains the terminals that provide power at the relay.
- 9. “+” Relay Positive Terminal:** The positive power pole for the relay coil. *Always wire this relay terminal to any “+28v” terminal at the control board.*
- 10. “-” Relay Negative Terminal:** The negative power pole for the relay coil. *Always wire this relay terminal to any “GND” terminal at the control board.*

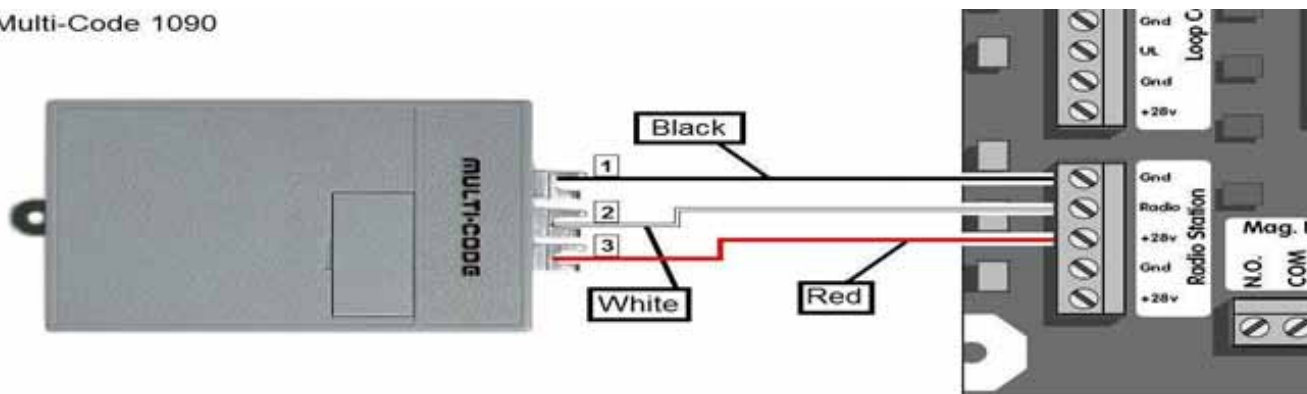
Appendix (B)

Common Radio Receivers - Connections

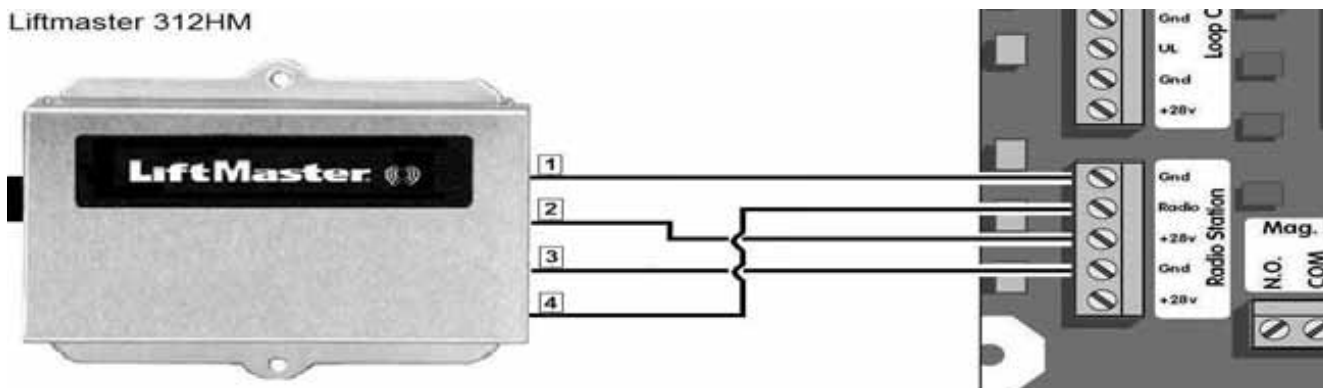
Multi-Code 1099



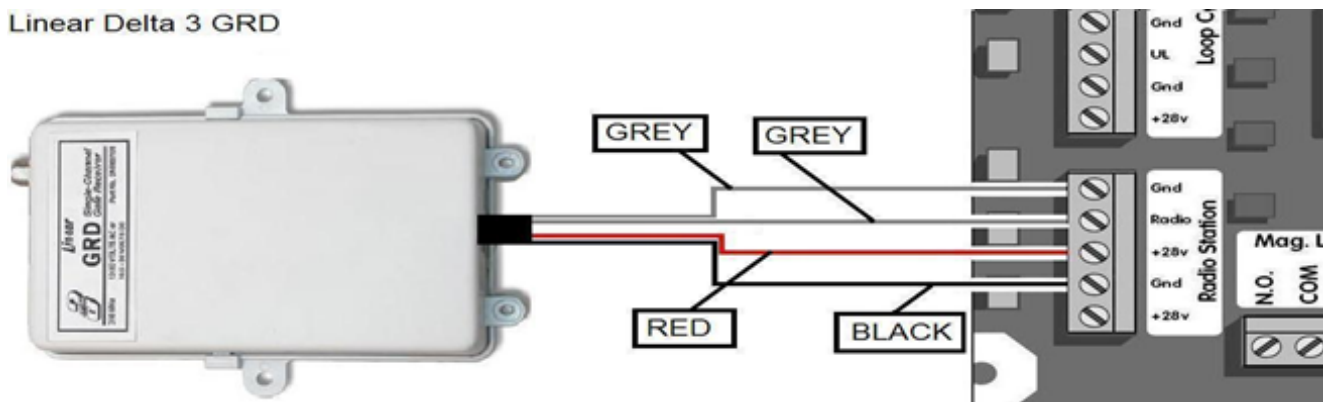
Multi-Code 1090



Liftmaster 312HM



Linear Delta 3 GRD



Solar Applications

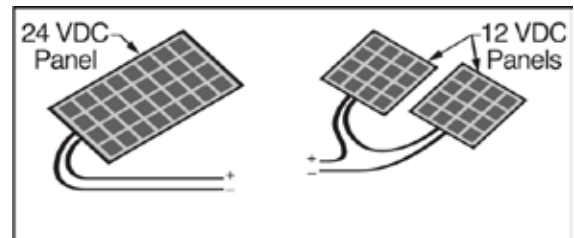
NOTE: Viking recommends Solar Package (**part # VA-SOCHP**) for most general solar applications. Alternatively, individual and third party solar components can be used. The following are minimum system requirements and installation information.

Panels

- Voltage 24V
- Wattage 80W (minimum)

Cut the wires coming from the toroidal transformer.

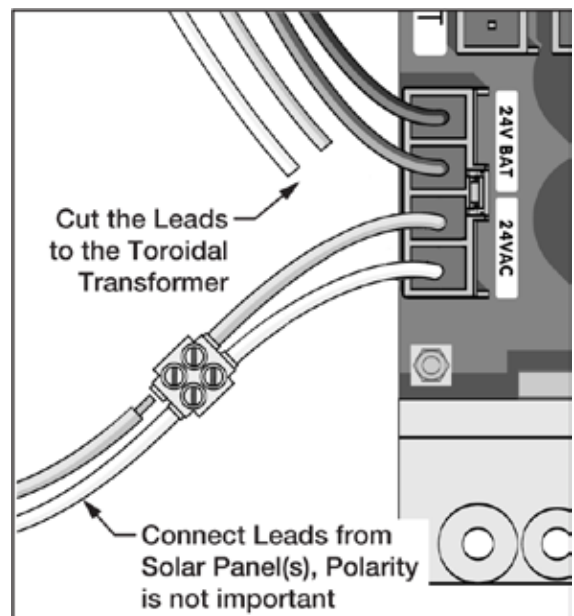
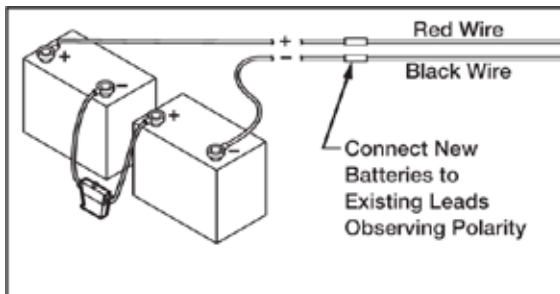
Connect the solar panel cables to the power harness as shown.



Batteries & Fuse

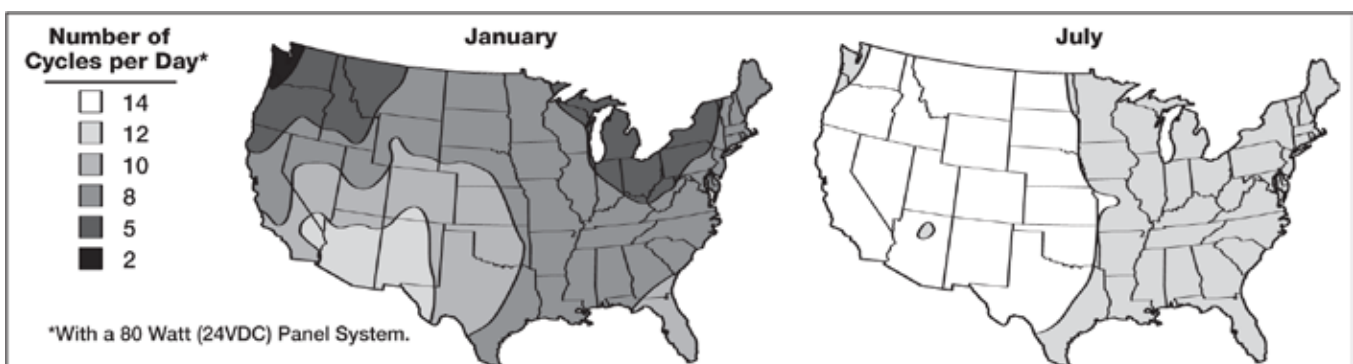
- Voltage 24V
- Amp Hour 35Ah (minimum)
- Fuse 10A (minimum)

Replace the operators batteries with 35Ah or greater.



⚠ IMPORTANT: The chart provided can be used as a guide to an idea of the number of cycles the gate will operate per day. The chart is for a single gate operator with just:

- One Radio Receiver
- One low voltage, low current loop detector
- One low voltage, low current photo beam



If more specific information is needed please consult with Viking Access Systems. For more information regarding solar energy refer to www.nrel.gov/solar

VIKING EXPANSION PRODUCTS



VIKING KONNECT Master/Slave Kit Secure and reliable Master/Slave communication using Vikings Konnect technology. Paired with the Viking App, each module also doubles as a diagnostic tool.
Part# VA-KONNECT-MS

Q-7 Operator models require (2) Antenna Extension Cables (part# VA-RPSMA)



VIKING KONNECT Diagnostic Tool On-site remote access to the operator from the convenience of a compatible hand held device. With the Viking App, this tool becomes a wireless extension of the control board allowing you to view and change settings, review diagnostic information, operate the gate for testing and update the control boards firmware. **Part# VA-KONNECT-D**

Q-7 Operator models require Antenna Extension Cable (part# VA-RPSMA)



VIKING MONITOR Off-site access to operator diagnostics and perform firmware updates from just about anywhere with cellular service. With the Viking App, this tool allows you to monitor and label multiple operators by site and location for quick reference. Provides error notifications, operator status, settings and diagnostic information.

Part# VA-MONITOR

Q-7 Operator models require Antenna Extension Cable (part# VA-RPSMA)



VIKING APP Mobile device user interface application for Viking Konnect and Viking Monitor. Available for iOS, Android and Windows 8 operating systems. Free for download from your mobile device application store or www.vikingaccess.com



VIKING AC SURGE PRO Adds another layer of protection to the high voltage power supply of your gate operator. Connecting the AC Surge Pro in parallel to the incoming power wires provides protection from surges up to 20,000 Volts / 10,000 Amps. **Part# VA-SURGEPROAC**



VIKING SOLAR KIT The components included in this package are intended to provide sufficient power for general applications.

Part# VA-SOCHP

This Kit includes the following components:

- | | | |
|-----|-----------------------------|--|
| (2) | 12V 40W Solar Panels | Part# VA-SO40W (wired in series = 24V 80W) |
| (2) | 12V 35Ah batteries | Part# DUBA35 (wired in series = 24V 35Ah) |
| (1) | Solar Charger | Part# SOCHR10 |
| (1) | Solar Power Harness | Part# SOHAR |

⚠ NOTE: The number of cycles achieved from this kit are dependent upon the following and may require increased panel and battery capacities:

- Power consumption of all accessories being used
- Average solar radiation of geographic location

OUR CONTINUOUS COMMITMENT TO EXCELLENCE

Viking Access Systems is continuously working hard to identify and design products that will appeal to the industry and its needs. As technology continues to advance, we have developed a completely efficient and intelligent line of gate operators to meet the changing demands. These machines offer; full UL325 and UL991 compliance, soft-start and soft-stop, intelligent obstruction sensors, continuous operation (100% duty cycle) and extreme power efficiency. Innovative features include; adaptive and self-learning algorithms, redundancy design in both hardware and software to ensure operation and functionality, protection from lightning, short circuit and power surges, and our exclusive helical gearing offering the highest efficiency rating in the industry. Our entire product line is continually modified and improved based on the latest technology and our customer's valuable feedback. The results are products that offer accuracy, efficiency, reliability and performance, all in sleek, high-tech designs.

We pledge to continue establishing ourself as the leader in high quality, innovative gate operators by developing "Next Level" technology. We are committed to providing safety and convenience with innovative solutions for every security gate need.



STANDARD FEATURES

- UL325 and UL991 Compliant by Underwriter Laboratories (UL) standards.
- Elegant design, appealing to any architectural project
- Plated and powder coated cabinet
- Weather-proof design
- Adjustable travel speed
- Auto-Open and Last-Open features for power outage management
- Hold Open Timer to automatically close the gate
- Built-in Battery Backup
- Intelligent speed control with smooth start and stop, self-adjust system
- On-Board LCD Display provides diagnostics, operator status, settings and real-time volt and amp readings
- Intelligent obstruction detection with adjustable sensitivity
- Built-in motor heater for cold weather applications
- Built-in protection against lightning strikes or similar electrical surges
- Inherent overload protection in the regulated power supply for external accessories with multiple devices of protection
- Modular connectors for easy access control installation
- Solar panel and low voltage wiring compatibility
- LED indicators display gate and operator status for easy troubleshooting
- Equipped for 115/230V AC, 24V AC/DC and Solar power supplies.

INSTALLATION DATE: _____

COMPANY / INSTALLER: _____

CONTACT: _____

SERIAL NUMBER(S): _____

ALL INSTALLATION, MAINTENANCE AND REPAIR WORK MUST BE DOCUMENTED AND MADE AVAILABLE TO THE USER.



VIKING ACCESS SYSTEMS

631 Wald Irvine, CA 92618

Phone 800.908.0884

Fax 949.753.1640

www.vikingaccess.com